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OF

GENERAL ORDERS,

SIGNAL OFFICE, WAR DEPARTMENT,

1886.

WASHINGTON CITY:
SIGNAL OFFICE.
1887.

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GENERAL ORDERS }
No. 1. }
Signal Office,
WAR DEPARTMENT.
Washington, January 6, 1886.

The vapor-tension, dew-point, and relative humidity tables, published in pamphlet form of date Nov. 27, 1885, will be used at all stations furnished with the whirled (or sling) psychrometer.

These tables will be substituted, from date of receipt of the psychrometers, for the dew-point and relative humidity tables heretofore in use at Signal Service stations.

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

[NOTE.—General Orders No. 52 is the last of the series of 1885.]

Signal Office,
WAR DEPARTMENT.
Washington, January 12, 1886.

GENERAL ORDERS }
No. 2.

- I. Paragraphs 329*a* to 329*q*, inclusive (as published in General Orders No. 21, series of 1884), "Instructions to Observers," &c., are annulled.
- II. The following instructions to cotton-region observers, Signal Service, U. S. Army, are published for the information of all concerned. They will take effect April 1, 1886.

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

NOTE.—This copy of Instructions to Cotton-region Observers should be kept *neat* and *clean*.

When an observer is relieved from duty, or is temporarily absent from his station, he will turn these instructions over to his successor, obtaining his receipt for the same, and will forward this receipt, by mail, to the observer in charge of the section centre.

INSTRUCTIONS TO COTTON-REGION OBSERVERS OF THE SIGNAL SERVICE, U. S. ARMY.

INTRODUCTORY.

The cotton-growing region of the South is one in which hundreds of millions of dollars are invested, and the condition of the crop is, at all times, a feature eagerly watched by those interested in the cotton commerce of the United States.

The many disasters to these investments by floods, drouth, frost, violent wind storms, and sudden or decided changes in temperature, has created a demand for such information as can be used to assist cotton exchanges, cotton merchants, and others in determining, at frequent intervals, the condition of the growing crop.

To meet these demands the Chief Signal Officer has made, with the co-operation of the railroads and telegraph lines in the Southern States, such arrangements that daily reports of the maximum and minimum temperatures and rainfall, and of the occurrence of frost and destructive storms, may be collected with reliability, and rapidly disseminated throughout the commercial centres of the cotton region, from April 1st to October 31st, inclusive, of each year.

INSTRUCTIONS.

1. The duties of the cotton-region observers are light and, as a rule, the operator in charge of the telegraph office at the place where the station is located will be selected for this position.

2. The duties consist of taking and recording observations at 5 p. m., *central* time (or 6 p. m., *eastern* time, at places where the latter is the standard), of (1) the maximum temperature; (2) the minimum temperature; (3) the amount of rainfall during the past twenty-four hours; (4) the occurrence of light or killing frost, or severe (destructive) storms, tornadoes, or violent thunder-storms.

3. The data collected in making these observations being for the public use, cotton-region observers are authorized to furnish such information as their records show to all persons requesting the same.

4. The pay of observers is at the rate of twenty (20) cents per report made, recorded, enciphered, and promptly telegraphed to the district centre, or transfer office, within fifteen (15) minutes of the time of taking the observation.

5. The cotton-growing region of the United States is divided into districts. These have been formed with reference to existing co-operating railroad lines, to secure the best telegraphic facilities, and arranged to prevent the overlapping of territory, which would produce errors in the preparations of mean temperature and average rainfall.

The districts embrace the territory adjacent to the more important cities in the Southern States where full reporting stations of the Signal Service are located. Each district has a centre for the concentration of reports from the several special stations, and the name of this centre is used to designate the district.

6. With rare exceptions, cotton-region observers will receive all their instructions from, and render all their reports and bills for services to, the observers in charge of their respective centres.

7. Observers should bear in mind that, in the acceptance of appointments as such, they become the authorized agents of the United States government, and also that they are amenable to the laws governing the same, so far as their duties as cotton-region observers are concerned. They should take their observations with zealous correctness and promptitude, and always remember that a false report, or a neglected duty, may endanger the property of their fellow citizens.

8. Each cotton-region station will be supplied with :

- 1 instrument shelter, with lock and key.
- 1 board and support for thermometers.
- 1 maximum thermometer.
- 1 minimum thermometer.
- 1 rain-gauge.
- 1 rain-gauge measuring-stick.
- 1 copy of Instructions to Cotton-region Observers.
- 500 Forms 203 b.
- 10 Forms 150 (postal card).
- 250 penalty envelopes, small.
- 25 penalty envelopes, official (letter size).
- 20 Forms 144.

9. All property and instruments will be supplied through the section centre, from the central office in Washington. The stationery above enumerated is the amount allowed for the season (seven (7) months) and will usually be found amply sufficient.

INSTRUMENT SHELTER.

10. The instrument shelter should be placed on the north side of

some building, free from the jar of passing trains. It should never be placed on a building where heavy freight is being handled, as the constant jarring tends to displace the index of the minimum thermometer, which makes the instrument read too low.

11. All instrument shelters now fastened to freight buildings, or liable to be thus affected by passing trains, should be removed and placed in a position free from these disturbances.

Observers in charge of section centres will see that the requirements of the above paragraph are complied with, if practicable to do so, at all the stations they visit.

12. The shelter is taken apart for shipment. The observer must put it together and then erect it at such height that the thermometers, when in position, shall be at about the height of the observer's eye. This will enable him to take accurate readings. The shelter must be securely fastened to the side of the building by means of large screws through the plates at the top, and it should also be firmly braced at the bottom and sides. It must be kept locked to prevent interference by unauthorized persons.

13. The board which accompanies the thermometers must be fastened with screws, in a horizontal position, against the cross-bar in the instrument shelter, and to the left. Before attaching the board, the observer will assure himself, by the use of a spirit-level, that the cross-bar is *exactly horizontal*. Should it be found that the cross-bar is *not* perfectly horizontal it will be made so.

MAXIMUM THERMOMETER.

14. For the support of the *maximum thermometer*, the long brass pin with a nut must be screwed into the board, in the hole to the extreme right. The nut must be taken off and the pin slipped through the hole in the upper end of the instrument, and then secured by replacing the nut and screwing it tightly. The plain brass pin must then be inserted in the hole on the left of the board, and the thermometer placed upon it, so as to slightly incline in that direction. The end of the pin to which the maximum thermometer is attached must be occasionally oiled to prevent friction. The maximum thermometer is read by observing the number of degrees upon the *scale at the top of the column of mercury*. After having taken a reading, the observer must remove the pin at the left and then take hold of the thermometer about three inches from the top and spin it around several times, in the direction of the motion of the hands of a watch, until the column reunites. Care must be taken

not to touch the bulb, and also that the nut is screwed up sufficiently tight to prevent the instrument from striking against the side of the board to which it is fastened. After adjustment, gradually raise the instrument to a nearly horizontal position and insert the pin as before. Care must be taken in elevating the instrument not to raise the bulb too high, as the column of mercury would then break and run to the upper end of the tube.

MINIMUM THERMOMETER.

15. The brass support (a long, thin, narrow piece of curved brass, containing two screw-holes near the centre), to which the minimum thermometer is attached, will be secured to the board in the following manner:

The *first* screw-hole will be made eight inches from the inner edge of the bevel at the end of the board on the right, and five-eighths ($\frac{5}{8}$) of an inch below the inner edge of the bevel on the top of the board.

After securing the brass support to the board with the *first* screw, attach the thermometer by screwing it to the support, and let the lower end of the thermometer-scale rest in the notch cut in the brass support to the left. Then bring the left end of the support to such a position that the upper edge of the thermometer-scale will run exactly parallel with the edge of the board. The *second* screw will then be inserted, which will secure the brass support firmly to the board.

The minimum thermometer, when attached to the support in this manner, will then be exactly horizontal, which position is best adapted to prevent any movement of the index not caused by the actual changes in temperature. The top of the thermometer must be fastened by the small brass screw upon the support and the lower end dropped into the notch to the left, after having been raised sufficiently to allow the small index in the tube to move down to the top of the column of spirit. This instrument is read by observing the number of degrees on the *scale where the top of the index rests*. If, at any time, air specks are discovered in the column, they may be removed by immersing the bulb in warm (not hot) water until all the air bubbles disappear in the space at the top of the tube, *great care being taken not to break the bulb, either by heating it too suddenly or by allowing it to remain in the water after the air bubbles have passed to the top of the tube*. After taking a reading, the bulb, or lower end of the thermometer, must be elevated until the index comes down to the end of the column of spirit, and then be lowered carefully into the notch at the left of the support, as before.

16. The instruments must be set, in the manner described, once each day, immediately after taking the observation. In no case must they be set at any other time.

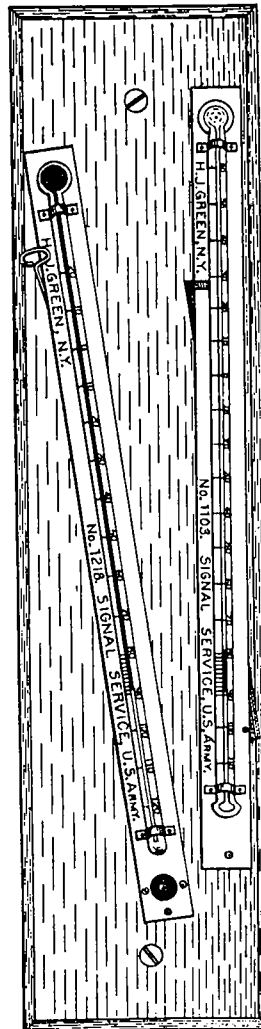
17. The wooden and pasteboard boxes, and the cotton in which the thermometers are received from the section centre, should be preserved, and, at the close of each season, the observers at the several stations will remove the maximum and minimum thermometers from the instrument shelter, and, after carefully repacking in said boxes, they will ship them by mail to the observer in charge of the section centre.

18. In packing thermometers for transportation, wrap them with sheet cotton and place them in the paper box; surround the whole with excelsior, or other soft substance, and, to prevent shifting, fill all spaces with cotton. The lids of the wooden boxes should be secured with screws, as the jarring resulting from driving nails into the wood is liable to break the thermometer.

19. After resetting the maximum and minimum thermometers, the top of the mercurial column of the maximum and the top of the alcohol column of the minimum should read alike.

Example.

The accompanying illustration represents the thermometers just after they have been set. It will be seen that the top of the mercurial column of the maximum indicates a reading of 89°. The top of the alcohol column and the top



of the index of the minimum show the same reading, 89°. This indicates that the two instruments have been properly set.

20. Should a difference of one degree or more exist in the readings of the thermometers after they have been set, this difference will be noted under the head of remarks, on Form 144, corresponding to the date the reading was made, thus:

[Form 144.]

Station : Athens, Ga. Month : July, 1886.

Date.	Temperature.		Rainfall.	Time report was filed in telegraph office.	Remarks. (Note severe storms and unusual phenomena.)
	Max.	Min.			
	°	°	Inches.		
July 1	89	78	.16	6.12 p. m.	Max. read 87°; min., 85°, after resetting.
2	95	80	.00	6.10 p. m.	
3	90	78	.09	6.08 p. m.	
4	97	85	.00	6.11 p. m.	

RAIN-GAUGE.

21. Place the rain-gauge, whenever practicable, in an open space, free from all obstructions to within ten degrees of the horizon, and protected from the interference of animals and unauthorized persons; secure it in a vertical position, with the top of the funnel-shaped collector twelve inches above the surface of the ground. When a position at the level of the ground, with a sufficiently clear exposure, cannot be found, place the gauge on the roof of the building.

22. To determine the rainfall, examine the gauge at the time of making each observation, measure the amount of water it contains, including precipitation from fog or dew, by means of the measuring-stick, then empty and replace the gauge.

23. The proportion between the sectional areas of the cylinder and funnel is as one to ten. The measuring-stick is graduated in inches and tenths of inches. Ten inches of water in the cylinder is equal to one inch of actual rainfall; one inch, to one-tenth of an inch of rain; and one-tenth of an inch to one hundredth of an inch of rain.

24. Stations in localities subject to heavy rainfall will be supplied with an attachment to the gauge of sufficient capacity to guard against overflow; but at stations where such rains are exceptional, care must be taken by the observer to prevent overflow during heavy rains. This overflow attachment is a larger, outer cylinder, into which the rain-

water flows from the inner cylinder after the latter has been filled. After having measured the water in the inner cylinder, empty it; pour the water from the outer into the inner cylinder; measure it, and the sum of the measurements gives the rainfall since last observation.

25. The gauge should be painted once each year at government expense, *but this expense must first be authorized by the Chief Signal Officer*. When observations are suspended each fall, the rain-gauge and the measuring-stick should be safely stored under cover for use the following season.

26. Before the resumption of observations in the spring the rain-gauge should be returned to the position it occupied at the close of the previous season, provided a more suitable one cannot be obtained.

27. Whenever any public property at a cotton-region station has become unserviceable by reason of ordinary wear and tear, or otherwise, such as breakage by accident, the observer will immediately notify the observer in charge of the section centre of the fact, informing him of the name of the unserviceable article and the nature and extent of the damage. When the needed repairs can be made at the station, the cost of the same should also be given. The observer in charge of the section centre will at once communicate with this office and request instructions in regard to the disposition to be made of the property. In no case will unserviceable public property be thrown away, but it will be held until orders are received from this office concerning its disposition.

28. Observers in charge of section centres, when notified that a thermometer or measuring-stick has been broken, or is otherwise unserviceable, will immediately replace it by a new one and call in the unserviceable instrument, which, upon receipt, will be forwarded to this office by mail, unless other disposition is ordered. Notification of shipment, and also a report giving the official Signal Service number of the instrument, the station from which it was received, and whether or not it has been replaced by a serviceable one, will be made by letter.

29. When the thermometers have been received at the close of the cotton-region season, each observer in charge of a section centre will furnish this office with the official number of each thermometer in good condition, and from what station received.

30. Form 150, Report of Instruments and their Condition (postal card), will be filled up in accordance with the several headings, and forwarded, at the end of each month, to the observer in charge of the sec-

tion centre, in the same mail with Form 144. After being examined, this report (Form 150) will be filed for future reference. If Form 150 is not received by the 5th of the succeeding month, it will be called for by the observer in charge of the centre.

31. In using the instructions contained in the following paragraphs, describing when observations will be taken and how transmitted to section centres, observers will be governed by those paragraphs in which the blank spaces have been filled up.

TIME OF OBSERVATIONS.

32. The regular observation at will be taken at p. m., time, and transmitted by telegraph to

33. Form 203 *b* will be used, first, for recording the observation and, second, for enciphering the report for transmission by telegraph in the manner described in paragraphs 36 and 37. The observer will take this form with him when reading the instruments, and will enter the readings in the spaces prepared for the same. He will afterwards enter the cipher words representing the instrumental readings in the blank spaces.

34. Whenever frost has occurred at, or near, the station, the word "frost" (if light frost), or "killing" (if the frost is killing to vegetation), will be written in the telegraphic report (Form 203 *b*) to the centre, in the space immediately following the word to express the rainfall.

35. If a severe (destructive) storm, tornado, or violent thunder-storm has occurred at, or near, the station within the past twenty-four hours, the word "destructive," "tornado," or "thunder," as the case may be, will be written on the Form 203 *b* in the space immediately following the word expressing the rainfall, unless the word "frost" or "killing" has been written therein; in which case it will be written in the next following space.

36. Form 203 *b* will be made up in duplicate; one copy for telegraphing the report to, and the other copy used to enter the data on the monthly Form 144, after which it should be enclosed in a small envelope and mailed to *Especial care must be taken in filling up this form, to write the cipher-words distinctly.*

INSTRUCTIONS FOR USING THE CIPHER.

37. The following system will be used in enciphering reports for the purpose of telegraphing:

The *maximum thermometer* words begin with "F."
 The *minimum thermometer* words begin with "V."
 The *rainfall* words begin with "R."

Example of a regular report.

[Form 203b.]

SIGNAL SERVICE, U. S. ARMY.

CIPHER TELEGRAM OF THE COTTON-REGION OBSERVATION AT LIVE OAK, FLORIDA, ON
 APRIL 1, 1885, AT 5 P. M.

Telegraph office time is minutes than 75th meridian time.

Max. temp., 54.	Min. temp., 47.	Rainfall, .06.
Observer.	Savannah.	Live Oak.
Verge.	Rack.	Frost.

Sent at 5.08 p. m.

W. F. BENNETT,
 Observer.

N. B.—Operators should send only the matter inside the heavy lines, without address or signature.

A copy of this form will be mailed daily to the observer in charge of the section centre.

(In duplicate.)

The word *observer* must be written in the 1st space.

The *name of the station of the Signal Service observer to whom the telegram is sent*, in the 2d space.

The *name of place at which the observation is taken*, in the 3d space.

The reading of the *maximum thermometer*, in the 4th space.

The reading of the *minimum thermometer*, in the 5th space.

The *rainfall*, in the 6th space.

The *occurrence of frost*, in the 7th space.

Translation:

To Signal Service Observer at..... Savannah, Georgia.
 From station at Live Oak, Florida.
 Time..... 5 p. m., central time.
 Maximum thermometer 54 degrees.
 Minimum thermometer 47 degrees.
 Rainfall06 of an inch.

Light frost has occurred at the station.

38. If there has been no rainfall in the past twenty-four hours, the space for the word expressing the amount of rainfall will be left blank.

39. The following cipher-words will be used by observers at special

cotton-region stations to encipher their reports for transmission by telegraph:

TABLE I.—MAXIMUM TEMPERATURE.

Zero (0°) to 125°.

0 Fear.	42 Fickle	84 Flag
1 Fearful	43 Fiction	85 Flagrant
2 Fearless	44 Fiddle	86 Flail
3 Feast	45 Fidget	87 Flake
4 Feat	46 Field	88 Flank
5 Feather	47 Fife	89 Flap
6 Feature	48 Fifth	90 Flash
7 Federal	49 Fig	91 Flatly
8 Fee	50 Fight	92 Flatter
9 Feeble	51 Figure	93 Flaunt
10 Feebly	52 Filbert	94 Flavor
11 Feed	53 Filch	95 Flaw
12 Feeding	54 File	96 Flea
13 Feign	55 Fillet	97 Fleet
14 Fellow	56 Film	98 Flesh
15 Felon	57 Filter	99 Flight
16 Felony	58 Filth	100 Flinch
17 Felting	59 Fin	101 Fling
18 Female	60 Final	102 Flint
19 Feminine	61 Finance	103 Float
20 Fence	62 Finch	104 Flood
21 Fencing	63 Find	105 Flower
22 Fender	64 Finding	106 Fluid
23 Fennel	65 Finely	107 Flute
24 Ferment	66 Finger	108 Fly
25 Fern	67 Finish	109 Foam
26 Ferret	68 Finless	110 Focus
27 Ferry	69 Finny	111 Fodder
28 Fertile	70 Fire	112 Fold
29 Ferule	71 Firm	113 Folks
30 Fervent	72 Firmly	114 Follow
31 Fervid	73 Firmness	115 Folly
32 Fester	74 First	116 Fondly
33 Festive	75 Fiscal	117 Fop
34 Festoon	76 Fish	118 Forage
35 Fetid	77 Fisher	119 Forbid
36 Fetter	78 Fit	120 Forest
37 Feudal	79 Fitful	121 Forget
38 Fever	80 Fitness	122 Forgive
39 Few	81 Fitting	123 Formal
40 Fib	82 Fix	124 Forth
41 Fibre	83 Fixture	125 Fortune

All cipher words must be written distinctly.

TABLE II.—MINIMUM TEMPERATURE.
Zero (0°) to 95°.

0 Vacant	32 Vault	64 Victor
1 Vacate	33 Veal	65 Victory
2 Vaccine	34 Velvet	66 Victual
3 Vagrant	35 Vendet	67 View
4 Vague	36 Vengeance	68 Vigor
5 Vaguely	37 Venison	69 Vileness
6 Vagueness	38 Venom	70 Village
7 Vail	39 Ventilate	71 Villain
8 Vain	40 Venture	72 Vine
9 Vainly	41 Venus	73 Violent
10 Valiant	42 Verb	74 Violin
11 Valid	43 Verbal	75 Virgin
12 Valise	44 Verbena	76 Virtue
13 Valley	45 Verdant	77 Visage
14 Valor	46 Verdict	78 Visible
15 Value	47 Verge	79 Vision
16 Vampire	48 Verify	80 Visit
17 Vandal	49 Vermin	81 Vista
18 Van	50 Verse	82 Vital
19 Vanilla	51 Version	83 Vivid
20 Vanish	52 Vesper	84 Vixen
21 Vanity	53 Vessel	85 Vocal
22 Vanquish	54 Vest	86 Voice
23 Vantage	55 Vester	87 Void
24 Vapor	56 Vestige	88 Volcano
25 Varify	57 Vestry	89 Volume
26 Various	58 Veto	90 Vote
27 Vary	59 Viand	91 Voucher
28 Varnish	60 Vibrate	92 Vowel
29 Vassal	61 Vice	93 Voyage
30 Vast	62 Vicious	94 Vulgar
31 Vastly	63 Victim	95 Vulture

All cipher words must be written distinctly.

TABLE III.—RAINFALL SINCE LAST REPORT.
In inches and hundredths of an inch.

0.00 to 0.49 inches.		0.50 to 0.99 inches.
* Johnson		0.50 Rap
0.01 Rabbit		0.51 Rapid
0.02 Rabble		0.52 Rapine
0.03 Raccoon		0.53 Rapture
0.04 Race		0.54 Rascal
0.05 Racer		0.55 Rash
0.06 Rack		0.56 Rashly
0.07 Racket		0.57 Rashness
0.08 Racy		0.58 Rat
0.09 Raddock		0.59 Rather
0.10 Radiant		0.60 Ratify
0.11 Radiate		0.61 Ratio
0.12 Radical		0.62 Ration
0.13 Radish		0.63 Rattle
0.14 Radius		0.64 Ravage
0.15 Raffle		0.65 Ravel
0.16 Raft		0.66 Raven
0.17 Rafting		0.67 Ravish
0.18 Rag		0.68 Rawley
0.19 Rage		0.69 Raymond
0.20 Rageful		0.70 Razor
0.21 Ragged		0.71 Reaching
0.22 Ragman		0.72 Read
0.23 Raid		0.73 Reading
0.24 Rail		0.74 Ready
0.25 Railing		0.75 Really
0.26 Rain		0.76 Ream
0.27 Rainbow		0.77 Reap
0.28 Rainless		0.78 Rear
0.29 Rainy		0.79 Reason
0.30 Raise		0.80 Rebate
0.31 Raisin		0.81 Rebel
0.32 Rake		0.82 Rebound
0.33 Raking		0.83 Rebuff
0.34 Rally		0.84 Rebuild
0.35 Ramage		0.85 Rebuke
0.36 Ramble		0.86 Rebut
0.37 Rampage		0.87 Recall
0.38 Rampant		0.88 Recast
0.39 Ramrod		0.89 Recede
0.40 Ramson		0.90 Receipt
0.41 Ranche		0.91 Receive
0.42 Rancid		0.92 Recent
0.43 Rancor		0.93 Reception
0.44 Random		0.94 Recess
0.45 Range		0.95 Recharge
0.46 Ranger		0.96 Recite
0.47 Rank		0.97 Reckless
0.48 Rankness		0.98 Reckon
0.49 Ransack		0.99 Reclaim

Less than 1 inch of rainfall.

All cipher words must be written distinctly.

* This word must be used when rain has fallen since the report of the preceding day, but the amount collected in the gauge is less than .01 inch.

TABLE IV.—RAINFALL SINCE LAST REPORT.

In inches and hundredths of an inch,

1.00 to 1.49 inches.		1.50 to 1.99 inches.
1.00 Reclasp	Between 1 and 2 inches of rainfall.	1.50 Regular
1.01 Recline		1.51 Regulate
1.02 Reclining.		1.52 Rehash
1.03 Recluse.		1.53 Rehearse
1.04 Recoil		1.54 Reject
1.05 Record		1.55 Rejoice
1.06 Recount		1.56 Rejoin
1.07 Recourse		1.57 Rejudge
1.08 Recover		1.58 Relapse
1.09 Recruit		1.59 Relate
1.10 Rector		1.60 Relation
1.11 Recur		1.61 Relative
1.12 Recusant		1.62 Relator
1.13 Red		1.63 Relax
1.14 Redden		1.64 Relaying
1.15 Redeem		1.65 Release
1.16 Redoubt		1.66 Relent
1.17 Redound		1.67 Relenting
1.18 Redraw		1.68 Reliance
1.19 Redress		1.69 Relic
1.20 Reduce		1.70 Relief
1.21 Reed		1.71 Relieve
1.22 Reef		1.72 Religion
1.23 Refer		1.73 Relish
1.24 Refill		1.74 Reload
1.25 Refine		1.75 Reluctant
1.26 Refit		1.76 Rely
1.27 Reflect		1.77 Remade
1.28 Refloat		1.78 Remain
1.29 Reflux		1.79 Remake
1.30 Refold		1.80 Remand
1.31 Reforge		1.81 Remark
1.32 Reform		1.82 Remedy
1.33 Refrain		1.83 Remember
1.34 Refresh		1.84 Reminder
1.35 Refuge		1.85 Remiss
1.36 Refund		1.86 Remit
1.37 Refusal		1.87 Remnant
1.38 Refuse		1.88 Remodel
1.39 Refute		1.89 Remold
1.40 Regain		1.90 Remorse
1.41 Regal		1.91 Remote
1.42 Regard		1.92 Remotely
1.43 Regatta		1.93 Remount
1.44 Regent		1.94 Removal
1.45 Regiment		1.95 Remove
1.46 Region		1.96 Render
1.47 Register		1.97 Renerve
1.48 Regrade		1.98 Renew
1.49 Regret		1.99 Rennet

All cipher words must be written distinctly.

TABLE V.—RAINFALL SINCE LAST REPORT.
In inches and hundredths of an inch.

2.00 to 2.49 inches.		2.50 to 2.99 inches.
2.00 Renown		2.50 Resort
2.01 Rent		2.51 Resound
2.02 Rental		2.52 Resource
2.03 Replace		2.53 Respect
2.04 Repack		2.54 Respite
2.05 Repaint		2.55 Respond
2.06 Repair		2.56 Response
2.07 Repast		2.57 Rest
2.08 Repay		2.58 Restful
2.09 Repeal		2.59 Resting
2.10 Repeater		2.60 Restless
2.11 Repel		2.61 Restore
2.12 Repent		2.62 Restrain
2.13 Repine		2.63 Restrict
2.14 Replacing		2.64 Result
2.15 Replant		2.65 Resume
2.16 Replete		2.66 Retail
2.17 Repleven		2.67 Retainer
2.18 Replevy		2.68 Retake
2.19 Replunge		2.69 Retard
2.20 Reply		2.70 Retire
2.21 Report		2.71 Retort
2.22 Reposal		2.72 Retouch
2.23 Repose		2.73 Retrace
2.24 Repress		2.74 Retreat
2.25 Reprieve		2.75 Retrench
2.26 Reprint		2.76 Retrieve
2.27 Reproach		2.77 Return
2.28 Reproof		2.78 Reunion
2.29 Reprove		2.79 Reveal
2.30 Reptile		2.80 Revenge
2.31 Repugn		2.81 Revenue
2.32 Repulse		2.82 Reverse
2.33 Repute		2.83 Revert
2.34 Request		2.84 Review
2.35 Require		2.85 Revince
2.36 Rescind		2.86 Revise
2.37 Rescue		2.87 Revival
2.38 Research.		2.88 Revive
2.39 Resend		2.89 Revoke
2.40 Reserve		2.90 Revolt
2.41 Reset		2.91 Revolve
2.42 Reship		2.92 Rewake
2.43 Reside		2.93 Reward
2.44 Resident		2.94 Rhubarb
2.45 Resign		2.95 Ribbon
2.46 Resin		2.96 Rich
2.47 Resist		2.97 Richly
2.48 Resolute		2.98 Richness
2.49 Resolve		2.99 Rickets

All cipher words must be written distinctly.

TABLE VI.—RAINFALL SINCE LAST REPORT.
In inches and hundredths of an inch.

3.00 to 3.49 inches.		3.50 to 4.00 inches.
3.00 Riddance	Between 3 and 4 inches of rainfall.	3.50 Ross
3.01 Riddle		3.51 Roster
3.02 Ride		3.52 Rostrum
3.03 Ridge		3.53 Rosy
3.04 Riding		3.54 Rotary
3.05 Rife		3.55 Rotate
3.06 Rifle		3.56 Rotten
3.07 Riggs		3.57 Rotunda
3.08 Rigging		3.58 Rough
3.09 Right		3.59 Roughly
3.10 Rightful		3.60 Round
3.11 Rigid		3.61 Rouse
3.12 Rigor		3.62 Rousing
3.13 Rimple		3.63 Route
3.14 Ring		3.64 Routine
3.15 Ringlet		3.65 Roving
3.16 Rinse		3.66 Row
3.17 Riot		3.67 Rowdy
3.18 Ripen		3.68 Royal
3.19 Ripley		3.69 Rub
3.20 Ripple		3.70 Rubbage
3.21 Rise		3.71 Rubber
3.22 Risk		3.72 Rubbing
3.23 Rival		3.73 Rubbish
3.24 River		3.74 Ruby
3.25 Roach		3.75 Rudder
3.26 Roadway		3.76 Rude
3.27 Roaming		3.77 Rudeness
3.28 Roars		3.78 Ruffian
3.29 Roast		3.79 Rufus
3.30 Roasting		3.80 Rugged
3.31 Robbery		3.81 Ruinous
3.32 Robin		3.82 Rule
3.33 Robe		3.83 Ruling
3.34 Robert		3.84 Rummage
3.35 Robust		3.85 Rumor
3.36 Rocky		3.86 Rumpus
3.37 Roddy		3.87 Run
3.38 Rogers		3.88 Running
3.39 Rogue		3.89 Ruption
3.40 Roll		3.90 Rural
3.41 Rolling		3.91 Ruskin
3.42 Roman		3.92 Russell
3.43 Romance		3.93 Russia
3.44 Roof		3.94 Rust
3.45 Root		3.95 Rustic
3.46 Rope		3.96 Rusty
3.47 Rosary		3.97 Ruth
3.48 Rosette		3.98 Rutland
3.49 Rosland	3.99 Rutter	
		* 4.00 Rutledge

All cipher words must be written distinctly.

* When the amount of rainfall since last report exceeds four inches, two or more words must be used to express it, as "Rutledge," "Recede," which would indicate 4.89 inches.

MONTHLY REPORTS.

40. Form 144 will be filled up in duplicate, as indicated by the several headings, and the sums and means at the bottom of the form carefully obtained and entered. To explain how the rainfall is entered on Form 144, the following example is given:

After measuring the water in the rain-gauge, as previously explained, it is found to measure six hundredths of an inch; this should be entered in its proper column on Form 144, as .06; fifteen hundredths should be entered as .15; twenty hundredths, as .20; one inch and twenty-five hundredths, as 1.25. Care will be taken to have the *decimal point* in its proper position.

41. One copy of this form will be forwarded to observer, Signal Service, U. S. Army, not later than the 2d of the succeeding month, and the other copy retained at the station for reference.

42. Care must be taken to enter on Form 144 all observations taken, as this report is used in auditing the observer's bill for services.

43. An itemized bill for services as cotton-region observer during the month should accompany Form 144.

The Chief Signal Officer reserves the right of withholding payment from any observer who neglects to make his reports accurately and promptly.

44. *The reports will be made on Sundays and holidays at the regular hour, and forwarded in the usual manner.*

45. Official communications by mail should be addressed, Observer, Signal Service, U. S. Army,; by telegraph, Observer,

46. The necessary blank forms, stationery, &c., will be furnished each observer, and will not be purchased by him without special authority, previously obtained from this office.

Timely requisition will be made upon the observer at , for additional blanks and stationery whenever, in the opinion of the observer, such action becomes necessary.

47. When, from any cause, an observer is temporarily absent and cannot sign Form 144, he should instruct the person whom he has designated to take the observation during his absence to sign this form as "agent for observer," but the bill and vouchers for services must, in all cases, be made and signed by the observer who has been regularly appointed.

48. Cotton-region observers must be authorized and appointed before commencing their duties, as no pay can be allowed them prior to their appointment. Observers in charge of section centres will see that all changes in observers are promptly reported to this office and the proper dates given, so that the new observers may be duly appointed.

INSTRUCTIONS TO SECTION CENTRES.

49. Observers in charge of section centres will be directed to visit the stations in their sections, when the interests of the service require it, for the purpose of instructing the special observers in their duties, and to see that the instrument shelter is properly exposed and the instruments set up in accordance with the instructions heretofore given. In future, before sending maximum and minimum thermometers to cotton-region stations, they will screw the brass support for the minimum thermometer to the board, in accordance with the instructions given under "Minimum thermometer," and they will be held responsible in all cases for the proper mounting of the instruments.

50. Observations will be made by the Signal Service observers at section centres, and other regular full-reporting stations in the cotton-region, in the same manner as explained for special cotton-region stations. At stations where *eastern* time is the standard, the observations will be made at 6 *p. m.*, *eastern time*.

51. The Signal Service observers in charge of centres, having collected all the reports from the stations in their respective districts, so far as possible, will make up the mean maximum temperature, mean minimum temperature, and average rainfall for the district. The means of the maximum and minimum temperatures must be found separately. These will then be enciphered and sent at the midnight circuit hour over the Washington and Lake City, the New Orleans and Augusta, and the New Orleans and Cincinnati circuits. The reports thus received at Signal Service stations on these circuits will, after the preparation of the bulletin, be duly filed and preserved as office records.

52. To calculate the average rainfall of a district, divide the sum of the amounts of rainfall reported from all the stations by the number of stations reporting; the quotient will be the average rainfall for the district.

Example.—Savannah district: Stations reporting April 1, 1885, were Savannah, Live Oak, Bainbridge, Jessup, Albany, Millen, Fernandina, Way Cross, Quitman, Thomasville, Smithville, Waldo, Fort Gaines, Eastman, and Allapaha; a total of fifteen. The amount of rainfall, re-

spectively, was: .00, .00, 1.06, .00, 2.50, .00, .00, 1.00, 2.52, .00, .00, 1.05, 1.25, 1.06, and 1.78; a total of 12.22 inches, which, divided by the number of stations reporting (15), gives, as the average rainfall of the district, 0.82 of an inch.

53. To calculate mean temperatures, find, separately, the sum of the maximum and the sum of the minimum temperatures; divide each by the number of stations reporting; the quotients will be the means of each for the district.

54. The telegraphic means from cotton-region districts will be made up from the reports of the special stations received by the observer. The words, two, three, four, etc., will be added to the cipher used in sending these reports over circuits to indicate the number of stations, including his own, used in making up the means. If no reports are received from special stations the central station will send its own report, and add the word *one* to show that no reports were received.

55. To illustrate the method of sending reports over telegraphic circuits, take Savannah as a district centre. Savannah makes out a mean of the maximum temperatures, a mean of the minimum temperatures, and an average of the rainfall for the district, and sends this report, written on Form 203, over the Washington and Lake City circuit, as follows:

Savannah. Fifteen. Firmly. Vessel. Radish.

This, translated, reads: Fifteen stations have reported to Savannah; the mean of their maximum temperature is 72°; the mean of the minimum temperature is 53°; and the average rainfall is .18 of an inch.

56. Each of the other centres on the Washington and Lake City, the New Orleans and Augusta, and the New Orleans and Cincinnati circuits sends the report for the district over its circuit.

57. Augusta will transfer all reports received at that station over the Washington and Lake City circuit to the New Orleans and Augusta circuit, and all reports received over the New Orleans and Augusta circuit to the Washington and Lake City circuit.

58. New Orleans will transfer all reports from the New Orleans and Augusta circuit to the New Orleans and Cincinnati circuit, and from the New Orleans and Cincinnati circuit to the New Orleans and Augusta circuit.

59. New Orleans will send reports from all centres to Galveston and Shreveport by special message.

60. Galveston will send its district report by special message to New

Orleans, where it will be transferred to the New Orleans and Cincinnati and the New Orleans and Augusta circuits.

61. Memphis will send all reports to Saint Louis by special message.

62. Washington City will send all reports to New York City, Baltimore, Philadelphia, and Boston.

63. The Signal Service observer at each station at which cotton-region reports are received will furnish the local press copies for publication the next morning, and will also bulletin the same at the cotton exchanges and other authorized places where they will be of benefit to the general public.

64. Each district centre will prepare and mail daily to the observer, Signal Service, U. S. Army, New Orleans, Louisiana, a copy of Form 138 *b*. Should any report be missing at the regular circuit hour the form will be held until 12, noon, the next day.

65. On receipt of the missing report by mail (as required by paragraph 36) it will be entered on Form 138 *b* and the form mailed, as instructed above.

66. Should a report be missing at 12, noon, as mentioned above, the Form 138 *b* will not be held any longer, but will be mailed at once.

67. As soon as the missing reports are received they will be entered on an additional Form 138 *b*, which will be mailed at once to the observer, New Orleans.

68. One copy of the Saturday issue of Forms 138 and 138 *b* will be mailed to this office with the other weekly forms.

69. Galveston, Little Rock, and New Orleans will mail, daily, a copy of Form 138 *b* to observer, Shreveport, Louisiana. The instructions relative to missing reports given in paragraphs 64, 65, 66, and 67 will be followed.

70. Mobile and Montgomery will mail a copy of Form 138 *b*, daily, to P. H. Mell, jr., Agricultural and Mechanical College, Auburn, Alabama.

71. Mobile, New Orleans, and Vicksburg will mail a copy of Form 138 *b*, daily, to Prof. R. B. Fulton, University of Mississippi, Oxford, Mississippi.

72. New Orleans and Vicksburg will mail a copy of Form 138 *b*, daily, to Robt. S. Day, New Orleans, Louisiana.

73. Atlanta, Augusta, and Savannah will mail a copy of Form 138 *b*, daily, to Prof. L. H. Charbonnier, University of Georgia, Athens, Georgia.

RULES TO BE OBSERVED IN CERTIFYING TO ACCOUNTS OF OBSERVERS.

74. The observers in charge of section centres are required to certify to the correctness of the bills of observers before forwarding them to the Chief Signal Officer for payment. They will be guided by the following rules, viz:

1st. Forms 144, when received from cotton-region stations, will be examined as to the correctness of the data recorded, and if found materially incorrect, or signature omitted, they will be returned for correction.

2d. When an observer renders an account for payment for more observations than have been received, and these observations appear on Form 144, and it is conclusive that they were properly taken, as shown by Forms 203*b*, but could not be sent, owing to the telegraph line being down, or other cause not due to the neglect of the observer, the bill may be certified to.

3d. Bills will be rendered thus: "For services rendered as cotton-region observer at (give station), from to (date), both dates inclusive: reports (give number), at 20 cents per report, \$....."

Bills not so rendered must be corrected accordingly.

4th. When an observation has been missed, the date, or dates, on which the report was omitted from Form 144 will be noted, in red ink, on the face of the bill, thus: "No observations taken August 2, 15, 23." The bill will be cut down to agree with the number of observations actually taken.

5th. Forms 144 will be mailed from the section centres to the Chief Signal Officer on the same day that bills are forwarded.

6th. When Forms 144 are not received by the 5th of the succeeding month, they will be written for by the observer in charge of the section centre.

7th. Forms 144 must not be held longer than necessary to audit bills, and each observer in charge of a centre will assure himself that the observer signing the bill has been regularly appointed by this office before the account is certified to.

8th. Observers in charge of centres will be held responsible for the correctness of accounts, and must assure themselves of the accuracy of the same before forwarding them for payment.

9th. The name of the observer who examines Form 144 must be written, in red ink, on the face of the form, to indicate that the report has passed through his hands.

10th. Bills of operators must show the stations from which reports are received and the number received from each.

75. Observers in charge of section centres will furnish this office on or before March 1st, of each year, a list showing the number of reports received daily by the operators at the centres or transfer offices.

76. The pay of operators will be five (5) cents for each report received or transferred.

Signal Office,
WAR DEPARTMENT.
Washington, January 21, 1886.

GENERAL ORDERS }
No. 3.

I. The following promotions in the Signal Corps, U. S. Army, are announced :

- 1st Class Private *Robert J. Hyatt*, to be Lance-Sergeant.
2d Class Private *William M. Miller*, to be 1st Class Private.

II. The following is announced as the result of the examination of 2d Class Privates, Signal Corps, U. S. Army, for the position of assistant on station :

1. Qualified ; and promoted to the grade of 1st Class Private :

- | | |
|-------------------------------|-----------------------------------|
| 1. <i>William D. Fuller.</i> | 8. <i>J. Paul Earnest.</i> |
| 2. <i>Walter F. Robinson.</i> | 9. <i>Everett C. Hobbs.</i> |
| 3. <i>Madison M. Brewer.</i> | 10. <i>Augustus F. Whitfield.</i> |
| 4. <i>Ferdinand J. Walz.</i> | 11. <i>Frank L. Harrod.</i> |
| 5. <i>Dexter C. Grunow.</i> | 12. <i>Robert M. Hardinge.</i> |
| 6. <i>I. Gwynn Gardiner.</i> | 13. <i>Allan E. Fraser.</i> |
| 7. <i>William C. Beck.</i> | |

2. Failed ; and continued in present grade, and subject to further orders :

- | | |
|------------------------------|-----------------------------|
| 1. <i>Edward B. Olney.</i> | 4. <i>William Burrows.</i> |
| 2. <i>William Morey, jr.</i> | 5. <i>John D. Croasman.</i> |
| 3. <i>Edward A. Hanner.</i> | |

3. Failed ; and recommended for discharge :

- | | |
|-------------------------------|-----------------------------|
| 1. <i>Albert L. Williams.</i> | 3. <i>George E. Lawton.</i> |
| 2. <i>Frank E. Linn.</i> | 4. <i>Patrick Bolton.</i> |

4. "The report of the board is approved, with the exception of the recommendation for discharge of Privates *Williams, Bolton, Lawton*, and *Linn*, who will be retained in the corps, on probation, for six months.

"W. B. HAZEN,
"Brig. & Bvt. Maj. Gen'l,
"Chief Signal Officer, U. S. A."

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
Washington, February 4, 1886.

GENERAL ORDERS }
No. 4.

General Orders No. 32, series of 1883, from this office, is amended to read as follows:

Enlisted men of the Signal Corps, U. S. Army, acting as marine agents, inspectors of railroad bulletins or cotton-belt stations, or on similar duty, and travelling under instructions from this office, will, in the performance of such duty, be reimbursed for actual expenses necessarily incurred by them for street-car fare, ferriage, row-boat hire, and other costs of short transits.

A detailed account, showing the daily expenses under each of the above items, should be made upon the completion of the duty, or at the end of each month, and forwarded to this office for audit and settlement.

In order that the account may be considered, it is absolutely necessary that the receipt of each person to whom money is paid, for which reimbursement is claimed, shall accompany the account.

The account must be forwarded in duplicate, accompanied by a copy of the order or instructions under which the journey was performed, and by Form No. 52, properly signed, together with the receipts of the persons, before mentioned.

Newspapers and postage are not considered proper items of expense, and consequently no reimbursement of amounts paid for these items will be allowed. [1102, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER:

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

GENERAL ORDERS }
No. 5.

Signal Office,

WAR DEPARTMENT.

Washington, February 20, 1886.

The following enlisted men, Signal Corps, U. S. Army, named in the order of merit, are especially commended by the Chief Signal Officer for care and accuracy in connection with their meteorological duties:

Sergeant *T. B. Harrison*, 1 error in 5 months;
Sergeant *Frederick Belford*, 3 errors in 6 months;
Sergeant *Patrick Connor*, 5 errors in 6 months;
Sergeant *James Kenealy*, 6 errors in 6 months;
Sergeant *John Craig*, 8 errors in 6 months;
Sergeant *B. O. Lenoir*, 7 errors in 5 months;
Sergeant *J. H. Melton*, 7 errors in 5 months;
Sergeant *S. W. Rhode*, 9 errors in 6 months;
Private *W. S. Mayers*, 9 errors in 6 months;
Sergeant *Peter Wood*, 10 errors in 6 months;
Private *P. H. Fitzmaurice*, 10 errors in 6 months.

BY ORDER OF THE CHIEF SIGNAL OFFICER:

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
Washington, February 23, 1886.

GENERAL ORDERS }
No. 6. }

I. Corporal *Samuel A. Haney*, Signal Corps, U. S. Army, is reduced to be 1st Class Private.

II. The following promotions in the Signal Corps, U. S. Army, are announced:

1st Class Private *Henry Pennycutt*, to be Corporal.
2d Class Private *W. Easby Smith*, to be 1st Class Private; to date Feb. 6, 1886.

BY ORDER OF THE CHIEF SIGNAL OFFICER:

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

GENERAL ORDERS }
No. 7. }

Signal Office,
WAR DEPARTMENT,
Washington, March 1, 1886.

The following promotions in the Signal Corps, U. S. Army, are announced:

Corporal *John D. Parker*, to be Sergeant.
1st Class Private *George Hass-Hagen*, to be Corporal.

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER:

B. M. PURSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT,

GENERAL ORDERS }
No. 8.

Washington, March 10, 1886.

Paragraph 215, "Instructions to Observers," &c. (as amended by General Orders Nos. 5, 77, and 84, series of 1882; General Orders Nos. 11 and 35, series of 1883; General Orders No. 81, series of 1884, and General Orders No. 33, series of 1885), is further amended to read as follows:

215. Requests for authority to make purchases or expenditures which can be anticipated, at stations, must be made quarterly on Forms 4184-1885 (old Form 23). Where the exigencies of the service require it, requests on the same form can be made at any time, but must be accompanied by a letter of transmittal fully explaining the necessity.

As the law requires competition, bids for supplying the articles needed or rendering the services required must be obtained from tradesmen for all classes of articles or services (except personal services, such as civilian assistants).

(a.) The following form of circular will be used in obtaining bids (a supply of which will be furnished from this office upon application):

CIRCULAR.

SIGNAL OFFICE,

(Place) _____, (Date) _____, 188 .

To _____,

In accordance with the directions received from the Chief Signal Officer, I have the honor to inform you that sealed proposals, in duplicate, subject to the usual conditions, will be received at this office until _____ o'clock _____ m., on _____ the _____ day of _____.

The government reserves the right to reject any or all proposals. Envelopes containing proposals should be marked "Proposals for _____," and addressed to the undersigned.

_____, Signal Corps, U. S. A.

PROPOSAL.

(Place of business) _____,

(Date) _____, 188 .

Sir,

In accordance with the foregoing, and subject to all the conditions and requirements thereof, _____ propose to _____ specified in the foregoing circular or specification at the following prices:

The back of the circular contains the following general instructions to bidders, which should be carefully understood :

Proposals should be prepared in strict accordance with the requirements made known in the advertisement, or circular of instructions to bidders; and copies of such advertisements, circular, or letter should be attached to the proposal and form part of it, and plans or specifications with which bidders may have been furnished be referred to in the proposal.

Numbers and prices should be written out in words as well as expressed in figures; but when a great variety of articles is required, as in case of stationery, hardware, &c., quantities and prices may, if the amounts involved are inconsiderable, and the forms of proposals so indicate, be expressed in figures only.

Specifications need not be written out in the body of the proposal. Their attachment to the proposal or the declaration that they form part of it will be sufficient. Alterations by erasures or interlineations should be explained or noted in the proposal over the signature of the bidder.

Proposals are to be prepared without assistance from any person belonging to, or employed in, the military service of the United States. They should be made in duplicate, upon the forms and in the manner designated in the advertisement.

Proposals should be signed by the bidder submitting them, with his usual signature in full.

When a firm is a bidder, the member of the firm or agent who signs the firm name to the proposal should state, in addition, the names of the individuals composing the firm.

Any one signing a proposal as the agent of another, or of others, must file with it legal evidence of his authority so to do.

The place of residence of every bidder, with post-office address, county and state, district or territory, should be given after his signature.

All proposals should be enclosed in suitable envelopes, securely sealed, endorsed, and addressed as required by the advertisement, and be delivered to, or received by, the officer to whom addressed before the time appointed for the opening; and no responsibility shall attach to that officer for the premature opening of any proposal not so endorsed as to show that it is a proposal, and the particular purpose for which it is made.

(b.) In all cases requiring bids the above form of circular must be used, and the upper portion filled up, sending the circular in duplicate to each person asked to bid and enclosing one of the special form of envelopes in which the proposals are to be returned.

(c.) In filling up the circular fix a date and hour when the bids are to be in, which must, in all cases, be at least ten days from the date of the circular, except where bids are asked for articles needed for current use during a fiscal year, in such cases the circular must indicate that the prices are to hold good during the fiscal year (which extends from, and including, July 1st of one calendar year, to June 30th, inclusive, of the succeeding calendar year), and a notice of at least thirty (30) days must be given.

(d.) In asking bids, each person must be given identically the same information, and if drawings or specifications are submitted to them, such drawings or specifications must be securely attached, with mucilage, to each copy of the circular.

(e.) In asking bids for coal the bidders must be informed to specify the number of pounds they propose to furnish to the ton, and where it

is to be delivered, and in what quantities, and the kind of coal, by its trade-name; thirty (30) days' notice must always be given.

(f.) In asking for bids for illuminating oil, state the exact kind by its trade-name, and its flashing test, and if to be delivered in original cans, &c.

(g.) Bids for stoves should specify kind, name, maker's name, and number.

(h.) Always invite at least three dealers or persons to bid (as many more as possible), always being governed by the circumstances of the case. Thus, where thirty days' notice is given, the notice to bid must be very generally distributed. If there is only one dealer in the town, bids must be invited, but that fact must be noted on the list of persons invited to bid.

(i.) One copy of the notice, properly filled up, must always be posted in a conspicuous place where the public will see it, and the fact that this has been done must be noted at the bottom of the list of persons asked to bid.

(j.) In preparing the special form of envelope which is to be sent out with the notices, mark each one "Proposals for" (filling up the blank), also indicate thereon the hour and date fixed upon when the bids will be closed.

(k.) As soon as each envelope containing a bid is received it must be endorsed plainly, in red ink, with the exact hour and date upon which it was received.

(l.) Any envelope containing bids received after the time fixed for them to be in has expired must not be enclosed with the other bids, but sent with a separate letter of transmittal, stating the circumstances of its receipt and the exact hour and date on which received.

(m.) Although all persons asked to bid may have sent in their proposals before the time fixed for them to be in, they (the bids) must be held until the very date and hour, specified in the notices, has expired.

(n.) When the time has expired the bids should be prepared for transmission, unopened, to this office, in a letter of transmittal, which must enumerate each and every paper enclosed.

(o.) The papers to be enclosed are:

1st. Form 418k—1885, with columnus properly filled up, except, of course, as to cost of the articles, &c., applied for, which is to be left blank.

2d. List of persons invited to bid, in duplicate, which is to be counted as two enclosures.

3d. The bids sealed and properly endorsed.

4th. One copy, properly filled up, of the letter sent out asking for the bids. As a rule, the copy posted can be used for this purpose.

(p.) The letter of transmittal should show, in the lower left-hand corner, in red ink, the number of enclosures, as (..... enclosures).

(q.) Needs of the station must be anticipated in time to give the notice of ten days or more, and the time to have the papers reach this office, and the authority to issue therefrom, which, of course, will vary as the distance of the station from this office, but at least one month would seem to give ample time. Notices of thirty days must be given in each and every case, unless the articles are needed *immediately*. Notices of ten days cover only the purchase of the article and the quantity for which bids were asked, and cannot be used for purchasing additional quantities of the same article.

(r.) In the letter of transmittal, state the open market price of each article needed.

(s.) Many items of expenses are incurred at stations, without competition, which can be anticipated, and must, in future, be incurred only after receiving proposals in the manner as indicated herein; thus, for hauling public supplies, stabling public animals, hire of teams and boats in repairing telegraph lines, &c.

(t.) In cases of ferriage, tariff rates, in duplicate, should be procured from every ferryman or ferry company whose ferry may be used, and forwarded for file in this office for use in examining accounts of this nature; in case of tolls, obtain the printed schedule of rates from the toll keepers.

(u.) Where water or gas is used continuously at a station it is intended to make yearly contracts covering the items, and for this purpose observers and others in charge of stations must obtain and forward, in May of each year, the rates for the same, with the name of the corporation from which obtained, so that contracts can be made.

The foregoing embodies the instructions contained in circular letter of December 10, 1885, which is hereby superseded.

When the persons interested are willing, bills for services should be rendered quarterly, in all other cases they must be rendered monthly. Bills contracted under special letters authorizing expenditures or purchases should be forwarded immediately upon incurring the debt, and accompanied by the letter of authority, in accordance with instructions printed thereon. Should, however, the letter of authority not be used,

it must be returned at once for cancellation, by endorsement stating the reasons why it was not used.

Bills sent to this office for payment, or receipted vouchers returned, must be accompanied by letters of transmittal enumerating the enclosures.

The following data will be noted on all bills for rent of office, &c. :

Number of rooms occupied by observer, and the floor or floors on which located.

The numbers of the rooms in the building, if known, as "Room No. 4."

Name of building, if it has a special name.

Number on street.

Name of street on which the building is located.

City or town.

Whether the rent of office includes janitor's service, heating, lights, &c.

Bills for fuel must always specify the number of pounds to the ton.

As reimbursements cannot be made for money paid out, except as provided for by General Orders No. 4, series of 1886, bills will not be rendered in the name of the sergeant or other person in charge of the station, but must be in the name of the party who performed the service or furnished the supplies.

Unless in cases of emergency, purchases which have been authorized will not be made during the last fifteen days of any quarter, and the bills for articles bought in March, June, September, and December will accordingly be forwarded for settlement on the 15th day of those months, respectively, or as soon thereafter as practicable. [2557, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 9.

Washington, March 11, 1886.

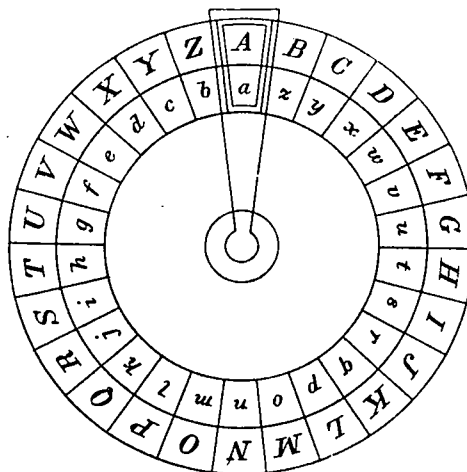
I. The following is published for the information and guidance of all concerned:

The Secretaries of War and of the Navy having approved a joint report of a board of officers of the Army and Navy, recommending the adoption of the English Morse code for purposes of visual signalling in and between the Army and Navy, the Secretary of War has ordered that hereafter the use of the General Service code be discontinued and the English Morse code be used instead throughout the Army.

Code cards, giving the English Morse alphabet, &c., ~~and also describing a method of enciphering signal messages in and between the Army and Navy,~~ will be printed for distribution by this office.

II. The following method of enciphering signal messages in and between the Army and Navy has been adopted:

CIPHER DISK.



Rules for its use.

1. If there be no previous agreement, the letter "a" of the inner circle will be set opposite the letter "A" on the outer circle.

2. The message being written down in plain English by using the letters in the outer circle, the corresponding letters on the inner circle will be *transmitted*.

3. The message will be deciphered by writing down from the outer circle the letters found opposite the letters in the enciphered (transmitted) message taken on the inner circle.

4. By preconcerted agreement any letter may be chosen on the inner circle as the key letter to be set opposite the "A" on the outer circle; or countersign words may be used, in which case the key letter is changed as often as there are different letters in the countersign words. In all cases the enciphered message should be divided into groups of letters, four letters in each group; and when signalling with flag or torch the signal (front motion) for end of word should be made at the end of each group. [G. O. No. 12, A. G. O., 1886.]

III. Paragraph 261, "Instructions to Observers," &c., as amended by General Orders No. 35, series of 1882, is further amended to read as follows:

From and after the receipt of this order, all enlisted men on duty at stations will be required to practice signalling one hour each week with the wand.

The practice will be duly noted on Form 30 [Form 304, new style], and the number of words per minute which each man can send and receive in the English Morse code will be given.

The inspectors of the Signal Service, will, as a part of the inspection of a station, examine all enlisted men, non-commissioned officers and privates, there on duty, in wand practice, and will report their proficiency to this office. [S. S. O. No. 81, 1881.]

IV. Paragraph 125, "Instructions to Observers," &c., is annulled.

BY ORDER OF THE CHIEF SIGNAL OFFICER:

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 10.

Washington, April 1, 1886.

I. The following-named Sergeants, Signal Corps, U. S. Army, are reduced to be 1st Class Privates:

James C. Sprigg, jr.

John Grover.

[2540, Obs.; 2854, 3039, and 3242, Sig., 1886.]

II. The following promotions in the Signal Corps, U. S. Army, are announced:

Corporal *Alexander W. Browne*, to be Sergeant.

Corporal *John B. Turton*, to be Sergeant.

Corporal *William H. Fallon*, to be Sergeant.

1st Class Private *James A. Barry*, to be Corporal.

1st Class Private *Frank Ridgway*, to be Corporal.

1st Class Private *Edward A. Evans*, to be Corporal.

BY ORDER OF THE CHIEF SIGNAL OFFICER:

B. M. PURSSELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 11. }

Washington, April 2, 1886.

1. Paragraphs 108, 109, 110, 111, 112, 113, 114, 115 (amended by General Orders No. 30, series 1882), 116, 117, and 118, "Instructions to Observers," &c., are amended to read as follows; to take effect May 1, 1886:

WIND-DIRECTION AND VELOCITY SIGNALS.

108. The Signal Service being charged by law with the announcement of the approach and force of storms on the northern lakes and sea-coast, it devolves upon this office and every member or employé of the service to exercise the utmost caution and diligence in executing this very important charge, not only because it is a duty each one owes to himself and the service, but more especially on account of the grave responsibility involved in advising as to the movements of shipping of very great value. It is a duty which cannot be too carefully or zealously performed.

108*a*. Although a steady progress has attended this service in announcing the approach of wind storms, since it was first attempted in 1872, yet there is room for improvement, and it is believed that further progress can be made at this office by utilizing the many valuable recent discoveries in meteorology, assisted by the observers exercising the utmost care in making and forwarding their observations, and in promptly and correctly publishing, by signal or otherwise, the storm warnings received.

108*b*. Warnings of the approach of wind storms will be published by the display of flags by day and lanterns by night, in connection with bulletins posted and reports furnished to newspapers, mariners, and others interested.

108*c*. The signals adopted by this service for announcing the approach of wind storms are of three kinds, viz.:

1. The Cautionary Signal.
2. The Direction Signal.
3. The On-shore Signal.

108*d*. The cautionary day signal is a square red flag with black square centre, and a red light at night. It is hoisted when a wind-velocity of thirty-five (35) miles per hour, or over, is expected within one hundred (100) miles of the station where displayed. This velocity is considered dangerous to all classes of shipping.

108*e*. The direction signal is a square flag composed of two horizontal stripes, one black and one white. It is never displayed except with the cautionary-signal flag, and indicates from what quadrant the dangerous wind is expected. For this purpose the compass is divided into the NE., SE., SW., and NW. quadrants. Orders to hoist a direction signal will always state from which of these quadrants the dangerous wind is first expected. There is no night signal for the direction signal.

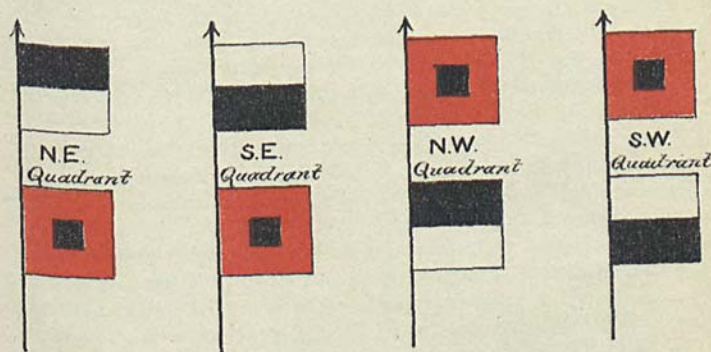
108*f*. The on-shore day signal is a square flag composed of four smaller squares, two white and two black, so arranged that squares of like colors touch each other only at one corner. It is displayed at lake stations taking observations, when a wind is expected from the water, blowing on-shore, of between twenty (20) and thirty-five (35) miles at the station where displayed. This velocity is considered dangerous to small vessels, barges, and tows on the lakes. The on-shore night signal is a white light. A direction signal will not be hoisted with the on-shore.



108*g*. The stations where wind signals are displayed will be equipped with one flag-staff and two complete sets of wind-signal equipments. The staff will be located, if practicable, upon the roof of the building in which the observer's office is located, and equipped with two sets of halyards. The staff should extend not less than fifty feet above the roof. If the staff is located where a wind signal cannot be seen from all points of the harbor, or navigable water within three miles of the observer's office, a second location will be selected, preferably at some point where the display will be visible over the area not visible from the main point of display. All wind-signal orders will be duplicated at this second point. This second display should be made from some prominent flag-staff, the use of which will be obtained, if possible, without expense to the United States.

If, at any time, the staffs upon which the displays are made become disabled, the observer will take steps to secure the use of another staff for displays, pending the repair of the injured staff.

108h. The direction signal will be displayed only with the cautionary signal, and not more than three feet from it, in the following manner:



It will be noticed that the direction flag is above the cautionary flag for easterly winds and below for westerly, and that the black stripe is above the white for northerly winds and below for southerly.

108i. If the cautionary signal is hoisted alone it indicates that the direction from which the dangerous wind may come has not been determined.

108j. Orders to display wind signals will be received in about the following words, viz.:

- (1.) "Nine forty a. m., hoist cautionary," or
- (2.) "Eleven ten p. m., hoist cautionary and southwest," &c., or
- (3.) "Six forty a. m., hoist on-shore," or
- (4.) "Eight fifty a. m., change southwest to northwest," &c., or
- (5.) "Seven thirty p. m., change on-shore to cautionary and northwest," &c., or
- (6.) "Change cautionary to on-shore."

108k. Observers will receive with the order to hoist, and as often during the display as the Indications Officer considers necessary and practicable, a brief statement giving (1) the location of the storm-centre and the probable direction in which it will move; (2) the probable direction of the wind at the station in the next eight or sixteen hours, and the probable direction in which it will shift; (3) the probable state of weather in the next eight or sixteen hours, whether rain, snow, or

fog is expected, and whether higher or lower temperature; (4) and the probable time the storm will cease to be dangerous.

108l. To further add to the information concerning the area over which a storm is expected to prevail, telegrams will be sent to stations of the 2d order displaying cautionary signals, announcing the hoisting and lowering of cautionary signals at stations both in the vicinity and at those stations located in the direction from which the storm is approaching.

This information and that mentioned in the preceding paragraph will be given as wide a circulation by bulletins and newspaper reports as the means in the possession of the observer permit and the needs of the public demand.

108m. Orders to hoist wind signals will be acknowledged by telegraph, in about the following words: "Hoist cautionary received ten a. m.;" "Hoist cautionary and southwest received eleven twenty p. m.;" "Hoist on-shore received six forty-seven a. m.;" "Change southwest to northwest received nine a. m.," &c. Always use 75th meridian time, and words instead of figures.

108n. Example of an acknowledgment for a wind-signal order:

"Signals, Washington:

"Hoist cautionary and southeast received eleven twenty p. m.

"Collect.

SMITH, *Private.*"

108o. After acknowledging the receipt of a wind-signal order, the proper flags or lights will be displayed.

108p. During the display of a wind signal, observers will so arrange their duties as to have their offices open at least between 7 a. m. and 11 p. m., in order that the public may have access to such information as the observer may be able to give. If it is not practicable to have the office open continuously between the above-mentioned hours, on account of other duties, the observer will post a notice upon the office door, whenever it is necessary to close the office, stating where he can be found and at what hour the office will be again open.

108q. During a wind-signal display the lantern will be substituted for the flag about thirty minutes after sunset. The flag will be substituted for the lantern thirty minutes before sunrise, except as provided in the next succeeding paragraph.

108r. During that portion of the year in which the sun rises before the observer reaches the office in the morning to take the 7 a. m. observation, the proper flags will be hoisted just below the lantern after

the observer receives "Good night" for the previous day. In such a case the lantern will be lowered when the observer reaches the office in the morning.

108*s*. At wind-signal stations the observer will not go off duty at night until he has received "Good night" by wire.

108*t*. The order "Down signals" will lower all signals displayed. In cases where it is desired to continue the cautionary but lower the direction signal, the order will be modified accordingly.

108*u*. The order "Down signals" will be acknowledged at once by wire (except when the order directs "Acknowledge when the signal is lowered") in about the following words, viz.: "Down signals received ten fifteen a. m., forty, northwest."

If the order only refers to a direction signal the acknowledgment will be about as follows: "Down southeast received ten fifteen a. m.," &c.

108*v*. The maximum velocity of wind during the display and the wind directions at the times of the maximum velocity will always be included in the message acknowledging the order to lower a cautionary or on-shore. (See example in the preceding paragraph.)

109. As soon as an order to lower a cautionary or on-shore signal has been acknowledged the signal will be lowered, provided the wind-velocity is below the verifying velocity.

109*a*. To provide against keeping a cautionary signal displayed after the dangerous wind has passed, orders will often be received on station to lower the cautionary signal, even while the dangerous wind is prevailing, but is expected to cease before the next telegraphic observation. In no case will the signal be lowered until the wind falls below the verifying velocity.

109*b*. To provide further against the display of cautionary signals after the dangerous wind has passed, observers will wire the fact to this office, or the office from which they get their orders, if the velocity of the wind falls below the verifying velocity during a cautionary signal display, provided (1) the wind is from a westerly direction, (2) the barometer is rising, and (3) it is more than one hour before the next telegraphic observation. The proposed telegram will be about as follows:

"Signals, Washington :

"One fifty-four p. m. Rising barometer; southwest wind; cautionary continues hoisted.

"Collect.

JONES, *Corporal*."

110. As soon as practicable after a wind signal has been lowered, observers will collect from all available sources as much information as possible in reference to: (1) the effect of the display upon the marine and other interests, as to whether said display was of any material *benefit* or *injury*, in influencing the movements or protection of vessels or other property; (2) if the display was verified, the apparent violence of the storm, as to whether any person or property was injured, and, if so, was it probable that such injury resulted from not heeding the display. The above information will be entered upon, or accompany, Form 112.

111. On account of there being a material difference at some stations between the wind-velocity recorded by the station anemometer and that experienced by vessels within one hundred miles of the point of display, the verifying velocity will not be the same at all stations. This office will inform each observer in charge of a wind-signal station what reading of his anemometer will be equal to the verifying velocity. Any change in the elevation or position of the anemometer will affect this verifying velocity.

WEEKLY REPORT OF WIND-SIGNAL DISPLAYS.

112. A weekly report will be rendered to this office upon Form 112 by each station designated to display wind signals. It will be made at the end of each week, without regard to whether any signal orders have been received or not. (Until a new supply of Forms 112 have been received those on hand will be used, changing the headings of the several columns to conform to the data to be recorded.)

112*a*. On Form 112, fill up each column with the data called for by the heading, noting against each signal hoist as to whether it is a cautionary, a direction, or an on-shore signal.

112*b*. On Form 112, enter cautionary orders and resulting data in black ink; and on-shore and direction orders and resulting data in red ink.

112*c*. The wind-velocity, in miles per hour, used on Form 112 must be four times the velocity obtained from the station anemometer for fifteen minutes.

112*d*. The beginning of a storm will be the commencement of the first consecutive fifteen minutes in which the wind-velocity is equal to the verifying velocity; and the end will be the last minute of the last fifteen consecutive minutes in which the wind-velocity is equal to the

verifying velocity, provided it remains below the verifying velocity for four hours.

112*e*. A verifying velocity will be considered as continuous if the wind falls below that velocity for a period of less than four hours.

112*f*. If the wind should blow from more than one direction during the highest velocity, each direction will be given on Form 112.

112*g*. Enter on Form 112 each direction that prevailed during the display of a direction signal, in the order in which they occurred.

112*h*. An order to change an on-shore to a cautionary, a cautionary to an on-shore, or the direction from one quadrant to another, terminates the record to be made concerning the signal changed.

112*i*. Stations supplied with an anemometer will enter the verifying velocity furnished by this office upon each Form 112 issued.

112*j*. On account of displays being made for dangerous winds at any point within one hundred miles of the station where displayed, it is not practicable for observers to state on Form 112 whether the display has or has not been verified, and it will not be done.

112*k*. If an order to hoist a signal is received after the verifying velocity has been reached, a note to that effect will be made on Form 112.

112*l*. If the wind has been above and should fall below the verifying velocity before a signal order is received, and remains below for four hours, it will be recorded on Form 112 as a storm without signals.

112*m*. Newspaper clippings concerning storms or wind-signal displays must accompany Form 112. They should be fastened to the form with a paper-fastener or pin, and not with paste.

112*n*. Enter on Form 112 the same data for storms without signals as for storms with signals, except that the fact that it is a *storm without signals* will be noted.

112*o*. If a signal is up at the end of the week, Form 112 for that week will be forwarded with only the information concerning the display that is available up to the end of the week.

112*p*. If a signal is up at the beginning of a week, Form 112 for that week will contain a complete history of the signal, including all the data concerning it found on the Form 112 for the previous week.

113. Observers will not hoist or order signals of any kind without proper authority.

113*a*. Observers will not lower, or cause to be lowered, any signals ordered by proper authority, unless (1) telegraphic communication has

been suspended for at least sixteen hours; (2) the wind has fallen below the verifying velocity; (3) the barometer is rising; and (4) other local meteorological conditions indicate that the storm has passed.

114. When practicable wind signals will not be ordered by the proper authority for more than sixteen hours at lake stations, and twenty-four hours elsewhere, before the probable arrival of the verifying velocity.

115. On the approach of the season during which navigation may be closed on the lakes, observers in charge of wind-signal stations on the lakes will confer with those most interested in lake navigation at their stations, and report to this office the date upon which the display of wind signals can be discontinued on the lakes for the winter. In the spring they will confer with similar above-mentioned persons and report the date at which the display of wind signals should be resumed.

115 *a*. The dates of suspension and resumption of the display of signals will be furnished each station by this office.

116. The equipments of a wind-signal station must be carefully inspected after each display and immediately put in perfect order, ready for the next display. If any portion of these equipments becomes unserviceable, requisition must be immediately made to have it replaced or authority asked to have it repaired.

WIND-SIGNAL DISPLAY SECTIONS.

117. It being impracticable to establish 2d order stations at all ports where it is desirable to display wind signals, arrangements have been made to display them at such points by employing some civilian at a nominal salary to attend to the signals and render weekly reports on Form 112.

117 *a*. Stations of this class are called display stations. No observations are taken at display stations.

117 *b*. Each display station will be furnished one flag-staff and two complete sets of wind-signal equipments.

117 *c*. For the purpose of obtaining prompt communication by mail and telegraph, and to relieve this office of the detail duties in connection with the management of these display stations, they are grouped and arranged in sections, and each section placed under charge of a neighboring 2d order station, called a section centre.

117 *d*. Orders to display signals at stations in a section are sent by the proper authority to the observer in charge of a section centre, who distributes the orders to the several display stations in his section.

117e. When an order is received at a section centre to hoist or lower signals in the section, the message will be sent exactly as received, except that (1) the address will be changed to conform to that of each display station for which it is intended, and (2) so much of the body of the message will be omitted as refers exclusively to the section-centre station. The place sent from or the signature will not be altered or added to in any manner whatever. This paragraph will also apply to stations which repeat their wind-signal orders to sub-stations, but are not located in sections.

117f. The receipt of a wind-signal order from proper authority, in reference to displaying signals in a section, will be acknowledged at once, by wire. The acknowledgments from the displaymen will be accounted for by mail, in connection with Form 225.

117g. On account of there being no night telegraph service at many of the display stations, orders for such stations will be sent to section centres, when practicable, at or before 5 p. m., daily, except Sunday, and on Sunday at or before 10 a. m. To avoid any delay in the orders at the section centres, observers will promptly file them for transmission and take such steps as may be necessary to have them transmitted at once.

117h. Observers in charge of section centres, or who repeat their own signal orders to sub-stations, will not telegraph to display stations the dispatches announcing the hoisting or lowering of signals at other stations, or any other information concerning the expected storm, except when such information is a part of the message which affects signals at the display stations in the section, and further, except when the dispatch contains an order to repeat the information to display stations.

118. With a few exceptions, display stations will receive all instructions from, or through, and render all reports to, the observer in charge of the section centre. (See "Instructions to Displaymen of the Signal Service.")

118a. Observers in charge of section centres will carefully examine any reports received from display stations, especially Forms 112, and if found correct they will so certify upon the face of the reports and promptly forward them to this office.

118b. If any of the reports received from the display stations are found defective, and cannot be remedied at the section centre, they will be returned to the displaymen for correction.

118c. If reports from displaymen are not received within three days after the time they should be rendered, they will be called for by mail. Any persistent neglect in this direction, by displaymen, will be reported to this office with such recommendations as, in the wisdom of the observer, will correct the irregularity.

118d. In communicating with displaymen, observers will be careful to write in a distinct, complete, and formal manner, always exercising due official courtesy. Such correspondence will be made a part of the official record of the station.

II. So much of pages 67 and 68 (amended by General Orders Nos. 8 and 18, series 1884), "Instructions to Observers," &c., as relates to Form 112, and cautionary, off-shore, and northwest signals are revoked; to take effect May 1, 1886.

III. The last paragraph on page 74, "Instructions to Observers," &c. (amended by General Orders Nos. 20 and 35, series 1882, and No. 78, series 1884), is further amended to read as follows:

At each wind-signal station an additional cipher-word will be added to the tri-daily telegraphic report whenever the maximum velocity of the wind since the preceding telegraphic report has equaled or exceeded the verifying velocity for a cautionary signal. This word will form the last word of the report, except from stations sending sea-swells, and will be taken from the regular velocity words in the cipher-book. When the 11 a. m. observation has been telegraphed to this office the maximum velocity at 3 p. m. will be taken since the 11 a. m. observation.

A word for the current velocity will always be sent in the same report with the maximum velocity. [3318, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER:

B. M. PURSSELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office.

WAR DEPARTMENT.

GENERAL ORDERS }
No. 12.

Washington, April 3, 1886.

To meet the requirements of General Orders No. 124, Headquarters of the Army, Adjutant General's Office, series 1885, the official telegrams of officers or agents of the government, offered at offices on the United States military telegraph lines or United States sea-coast telegraph lines, for transmission, wholly or in part, over the line of a private corporation, any portion of which runs alongside of, and occupies the same territory as, any one of the bonded Pacific railroads on the list named below, will be checked "O. B. and gov't subsidy" (preceded by the number of words contained in the message, including address, body, and signature), and will be accounted for by both sending and receiving offices as a free message. *At transfer offices* such telegrams will be turned over to the agent of the connecting line, and receipts taken therefor in the usual manner, but the commercial companies are to understand that they take such messages subject to a settlement of the tariff thereon by the accounting officers of the Treasury Department. [3263, Sig., 1886; 2837 and 2939, P. D., 1886.]

Road.	From—	To—
Central Pacific	Ogden, Utah	San Jose, Cal., via Lathrop, Tracy, and Niles.
Central Oregon Division	Junction with Central Pacific.	Southern boundary of Oregon
Central Visalia Division	Goshen, Cal., via Tulare, Mojave, and Los Angeles.	Colorado River, at or near Yuma.
Central Goshen Division	Goshen, Cal	Huron, Cal.
Denver Pacific	Denver Colo.	Cheyenne, Wyo.
Kansas Pacific	Kansas City, Mo	Denver, Colo.
Missouri Pacific, Central Branch.	Atchison, Kans	Waterville, Kans.
Oregon and California	Portland, Oreg.	Southern boundary of state.
Sioux City and Pacific	Sioux City, via California Junction.	Fremont, Nebr.
Union Pacific, Union Div.	Council Bluffs	Ogden, Utah.
Union Pacific, Kansas Div.	do .....	.....
Union Pacific, Cheyenne Div.	do .....	.....
Union Pacific, Saint Jo and Western Railroad Div.	Elwood (or West Saint Jo) ..	Hasting, Nebr.

BY ORDER OF THE CHIEF SIGNAL OFFICER:

B. M. PURSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 13. }

Washington, April 5, 1886.

I. The following-named enlisted men, Signal Corps, U. S. Army, are reduced to be 1st Class Privates, for gross errors in meteorological work :

Sergeant *William O. Bailey*.
Sergeant *William M. Edmondson*.
Sergeant *John J. Nanry*.
Sergeant *Dudley B. Notson*.
Lance-Sergeant *Daniel N. Farnell*.
Corporal *Caleb D. Burnley*.
Corporal *Thomas Gibson*.

For exceptional carelessness in the preparation of meteorological forms, 1st Class Privates *Daniel N. Farnell*, *Thomas Gibson*, and *Caleb D. Burnley*, are reprimanded, in addition to reduction in rank, and Private *Burnley* will be assigned to duty as an assistant on station. [3167, Sig., 1886.]

II. The following-named enlisted men are reprimanded for gross carelessness in the preparation of meteorological forms :

Sergeant *Julius G. Linsley*.
Sergeant *John B. Marbury*.
Corporal *Thomas F. Schley*.
1st Class Private *Henry R. Boynton*.
1st Class Private *John H. Davis*.
1st Class Private *William H. Greene*.
1st Class Private *Pearson M. Hutchinson*.
1st Class Private *William D. Maxwell*.
1st Class Private *Edwin C. Thompson*.
1st Class Private *James H. Young*.
1st Class Private *Jacob L. Whitmeyer*.

Sergeants *Linsley* and *Marbury* and Corporal *Schley*, have been allowed to retain their rank, in the belief that the consideration thus shown them will result in the immediate improvement in their work.

Private *Whitmeyer*, in addition to being reprimanded, will be assigned to duty as an assistant on station. [3167, Sig., 1886.]

III. The following promotions in the Signal Corps, U. S. Army, are announced :

Corporal *David Fisher*, to be Sergeant.
 Corporal *Lucius A. Welsh*, to be Sergeant.
 Corporal *John Fitzgerald*, to be Sergeant.
 Corporal *Rutherford H. Paxton*, to be Sergeant.
 1st Class Private *Vernon P. Chappel*, to be Corporal.
 1st Class Private *Arthur B. Crane*, to be Corporal.
 1st Class Private *Oscar N. Oswell*, to be Corporal.
 1st Class Private *Charles A. Read*, to be Corporal.
 1st Class Private *William L. Widmeyer*, to be Corporal.
 1st Class Private *Henry F. Knabe*, to be Corporal.

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 14.

Washington, April 21, 1886.

The following promotions in the Signal Corps, U. S. Army, are announced, from the dates set opposite their respective names :

Corporal *Paul Daniels*, to be Sergeant, April 13, 1886.

Corporal *Andrew T. Sherwood*, to be Sergeant, April 21, 1886.

1st Class Private *Edward E. Perry*, to be Corporal, April 13, 1886.

1st Class Private *William W. Dent*, to be Corporal, April 21, 1886.

2d Class Private *Timothy W. Sherwood*, to be 1st Class Private, April 17, 1886. [4093, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT,

GENERAL ORDERS }
No. 15.

Washington, April 26, 1886.

I. Form No. 310 (military telegraph message blank) is discontinued, and instead thereof, a special size of Forms Nos. 201 and 202 will be used hereafter. [4171, Sig., 1886.]

II. Sergeant *Thorp B. Jennings*, Signal Corps, U. S. Army, having made but 9 errors in 6 months, is especially commended by the Chief Signal Officer for care and accuracy in connection with his meteorological duties. [3370, Obs., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 16.

Washington, May 19, 1886.

I. Sergeant *Alexander W. Browne*, Signal Corps, U. S. Army, is reduced to be 1st Class Private, for gross neglect of duty. [4940, Sig., 1886.]

II. The following promotions in the Signal Corps, U. S. Army, are announced:

Corporal *Henry Pennywitt*, to be Sergeant.

1st Class Private *George M. Chappel*, to be Corporal.

BY ORDER OF THE CHIEF SIGNAL OFFICER:

B. M. PURSELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 17.

Washington, May 27, 1886.

I. The temperature of the dew-point as now obtained at the stations of this service, by the use of the stationary dry and wet-bulb thermometers, is not at all times satisfactory, especially so when the movement of the atmosphere is light.

When a carefully conducted series of observations is made with these instruments, with the surrounding air artificially disturbed, it is found that the temperature of the dew-point obtained, more nearly coincides with the readings of the standard dew-point apparatus.

It has been decided to secure a more perfect ventilation by mounting the dry and wet-bulb thermometers of this service upon whirling machines, by means of which the bulbs are made to describe a circle of two or more feet in diameter, and to come in contact with and be affected by a larger amount of the surrounding air than if stationary. This machine with the instruments attached will be known as the *whirling psychrometer*.

Observations with the whirling psychrometer will be commenced at stations, as they are supplied with the machine and thermometers, as soon as they are placed in position, and will be used as the official observations of the dry and wet bulb thermometers, on and after the first of the next succeeding month. Notes will be made on Forms 101 and 113 *a* that the observations are made with the whirling psychrometer.

Observations with the stationary dry and wet-bulbs will be continued until further orders and recorded on Form No. 172.

The dew-point and relative humidity tables published in "Instructions to Observers," 1881 (as amended by General Orders No. 10, series of 1884), will continue to be used for reducing all observations made with stationary thermometers, but a new set of tables called "Vapor Tension, Dew-point, and Relative Humidity Tables, adapted to the whirled (or sling) psychrometer," will be furnished by this office and used in observations made with the whirling psychrometer.

II. The following will be inserted in the "Instructions to Observers," &c., after paragraph 61 *a* :

TO SET UP THE WHIRLING MACHINE.

61*b*. Remove all the thermometers from the shelter, and take out the boards upon which they are mounted.

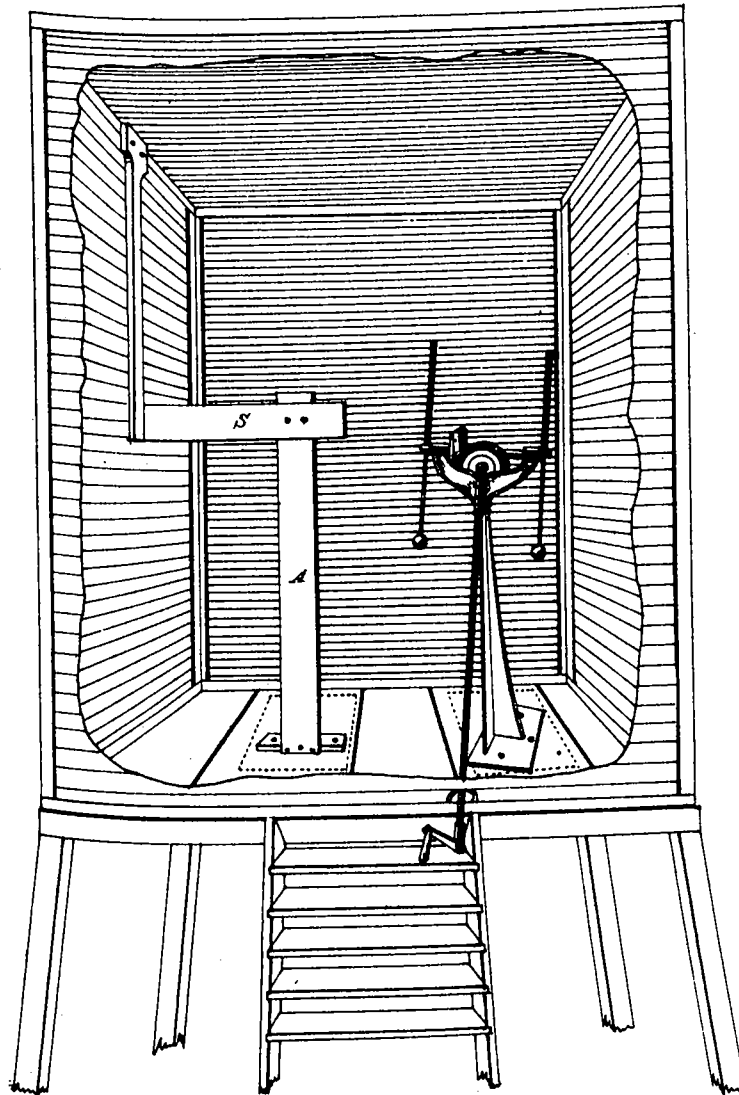
Three pieces of board about 3 inches wide and not more than 1 inch thick will be erected in the shelter, as shown in the figure herewith, to be used as a support for the stationary thermometers. The strip, *S*, will be eighteen inches long, and exactly half way between the top and bottom of the shelter. If the floor of the shelter runs at right angles to that shown in the figure, the bases of the machine and the board, *A*, will be placed upon boards as shown by the dotted lines. This will permit the use of the trap door for cleaning purposes. Replace on the cross strip, *S*, the maximum and minimum thermometers at such a point that the bulb of the maximum shall not be nearer than five (5) inches from the left side of the shelter. Place the whirling machine in the space on the right, as shown in the figure, and pass the end of the crank rod out between the base and the lowest slat of the front of the shelter, being careful to select a point where the crank will not interfere with access to the shelter and will be convenient to operate. It may be necessary to cut a portion of the slat to accommodate the crank rod. In locating the machine, see that the thermometers, when in a vertical position with their bulbs down, will be half way between the front and rear of the shelter, their scales face to the front; that the right bulb does not in any part of its path, approach nearer than two (2) inches to the right side of the shelter; and that the maximum thermometer can be set without coming in contact with any part of the machine, as long as the thermometers are vertical.

When all adjustments are made, fasten the machine to the floor of the shelter by screws, and secure the crank rod where it passes through the shelter, by using the staple supplied with the machine. Mount the stationary wet and dry-bulb, heretofore used, to the upright, *A*, placing them as high as the swinging of the maximum thermometer will permit. It may be necessary to throw them slightly forward by placing a board between the hygrometer board and the upright, *A*.

TO USE THE WHIRLING PSYCHROMETER.

61*c*. Cover the right thermometer bulb with thin muslin, and wet it by bringing up the small bottle filled with water, so as to completely immerse the bulb. Turn the crank at the rate of about 100 times per minute. After turning about thirty (30) seconds read the wet-bulb and

View, showing Whirling Apparatus.



then the dry-bulb. Repeat these whirls and readings until the minimum reading of the wet-bulb is obtained. Usually it will not require more than two or three whirls to obtain the minimum wet-bulb reading. This minimum reading of the wet-bulb and the reading of the dry-bulb obtained at the same time, will be the readings to be recorded.

61 *d*. When the temperature is below freezing, let the muslin remain on the bulb and wet it by repeated dippings, if necessary, until a thin, uniform coat of ice is obtained, then whirl as previously described.

Be especially careful to obtain the minimum reading when the temperatures are at, and just below freezing.

61 *e*. The whirling machine will be oiled whenever the bearings appear to need it. [5140, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 18. }

Washington, June 16, 1886.

The following promotions in the Signal Corps, U. S. Army, are announced, from the dates set opposite their respective names:

Corporal *George Hass-Hagen*, to be Sergeant, June 1, 1886.

Corporal *James A. Barry*, to be Sergeant, June 16, 1886.

1st Class Private *Fitzhugh Newman*, to be Corporal, June 1, 1886.

1st Class Private *George H. Penrod*, to be Corporal, June 16, 1886.

2d Class Private *William W. Neifert*, to be 1st Class Private, June 11, 1886.

2d Class Private *James I. Widmeyer*, to be 1st Class Private, June 11, 1886.

2d Class Private *William A. Whitney*, to be 1st Class Private, June 11, 1886.

2d Class Private *Charles C. Capwell*, to be 1st Class Private, June 11, 1886.

2d Class Private *Henry Goucher*, to be 1st Class Private, June 11, 1886.

BY ORDER OF THE CHIEF SIGNAL OFFICER:

B. M. PURSSELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 19.

Washington, June 17, 1886.

I. The following will be inserted in the "Instructions to Observers," &c., after the second clause of paragraph 161, page 106:

All communications upon official subjects from enlisted men of the Signal Corps on duty at military posts will be forwarded to the Chief Signal Officer through the post commander. [3788 and 4375, Obs., 1886.]

II. Paragraph 438, "Instructions to Observers," &c. (amended by General Orders Nos. 34 and 57, series 1883, and General Orders Nos. 63 and 74, series 1884), is further amended to read as follows:

438. The operator in charge of each telegraph station on the United States military telegraph lines will make a daily report to the officer in charge of the lines of the total cash on hand in his office for the preceding day, whenever he can telegraph the report without expense to the United States.

Remittances will be made to this office or to the officer in charge, as the case may be, whenever, during the month, the amount on hand reaches the sum of twenty dollars, and at the close of the business on the last day of the month.

In no case will a greater sum than twenty dollars be forwarded in one and the same package, except when a remittance of not exceeding twenty-five dollars can be made entirely by pay checks, *and on the same day on which a twenty-dollars remittance should have been made.*

In all other cases the balance on hand, after remitting twenty dollars, will be retained until a sufficient sum has been collected to make another remittance of twenty dollars, or until the end of the month.

At the close of business on the last day of the month, the total amount remaining on hand must be forwarded in one or more packages, of not exceeding twenty dollars each.

Remittances to this office will be made whenever practicable by pay checks or drafts, made payable to the Property and Disbursing Officer, Signal Service, U. S. Army, provided no expense to the Signal Service

is incurred in obtaining such drafts. In making such remittances, checks or drafts should be endorsed in the following manner:

"Pay to the order of the Property and Disbursing Officer,
Signal Service, U. S. Army.

(Signature)....."

The signature must correspond in every respect with the name as it appears on the face of the check.

In making remittances, the letter of transmittal must state what portion of the amount belongs to "This line" and what portion to "Other lines."

Remittances to officers in charge, other than the Property and Disbursing Officer, will be made, so far as possible, by pay checks, in the same manner as described above, changing the endorsement to correspond with the name of the officer in charge of the respective lines.

All remittances of drafts, checks, currency, or coin, must be forwarded by registered mail. A supply of stamps for registering purposes will be furnished by this office on application.

When remittances are made in coin or currency, special care should be taken to wrap the coin or currency compactly, and then enclose the same in a perfectly secure manner. If envelopes are used it should be seen that they are well gummed, securely fastened, and are sufficiently stout, so that they will not be injured in transmission.

All moneys received as tolls on the United States military telegraph lines will be deposited by the officer in charge in some designated depository for public funds, and, when necessary, will be sent to such depository by registered mail.

The special attention of the officers in charge of United States military telegraph lines is called to the paragraphs of the Army Regulations relating to money accountability. [5444, Sig., 1886.]

III. Paragraph 457, "Instructions to Observers," &c. (amended by General Orders No. 34, series 1883), is further amended to read as follows:

Each operator in charge will render monthly an account current (Form 31, U. S. Tel.) showing the earnings of the office during the month. One account current, in triplicate, will be made up for "This line" receipts only, and another form, also in triplicate, for "Other lines" moneys. One copy of each set will be retained at the station, and two copies forwarded to this office or to the officer in charge, as

the case may be, not later than the third day after the end of the month. The officer in charge will transmit one copy of each form with his money accounts to the office of the Chief Signal Officer. [5444, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 20. }

Washington, June 18, 1886.

Sergeant *Michael Mahany* is relieved from duty as *1st Sergeant*, Signal Corps, U. S. Army, and is assigned to duty as *Sergeant*, Signal Corps, U. S. Army; to date March 26, 1886. [5667, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 21.

Washington, June 21, 1886.

I. Paragraphs 112, 112*o*, 112*p*, 117, and 117*e* (as amended by General Orders No. 11, current series, from this office), "Instructions to Observers," &c., are amended to read as follows:

MONTHLY REPORT OF WIND-SIGNAL DISPLAYS.

112. A monthly report will be rendered to this office upon Form 112 by each station designated to display wind signals. It will be made at the end of each month whether any signal orders have been received or not. (Until a new supply of Forms 112 have been received those on hand will be used, changing the headings of the several columns to conform to the data to be recorded.)

112*o*. If a signal is up at the end of the month, Form 112 for that month will be forwarded with only the information concerning the display that is available up to the end of the month.

112*p*. If a signal is up at the beginning of a month, Form 112 for that month will contain a complete history of the signal, including all the data concerning it found on the Form 112 for the previous month.

WIND-SIGNAL DISPLAY SECTIONS.

117. It being impracticable to establish 2d order stations at all ports where it is desirable to display wind signals, arrangements have been made to display them at such points by employing some civilian at a nominal salary to attend to the signals and render monthly reports on Form 112.

117*e*. When an order is received at a section centre to hoist or lower signals in the section, the message will be sent exactly as received, except that (1), the address will be changed to conform to that of each display station for which it is intended; (2), so much of the body of the message will be omitted as refers exclusively to the section centre; and (3), the words "*forwarded from*....." (giving name of station) will be inserted immediately after *Washington, D. C., and the date*. The place sent from, or the signature, will not be altered in any manner whatever. This paragraph will also apply to stations which repeat

their wind-signal orders to sub-stations, but which are not located in sections.

Example:

WASHINGTON, D. C., *April 28, 1886.*
(Forwarded from Boston.)

TO DISPLAYMAN,

Marblehead, Mass.:

Nine forty a. m., hoist cautionary and northeast. Heavy storm in Tennessee, moving easterly.

[5745, Sig., 1886.]

HAZEN.

II. So much of page 59, "Instructions to Observers," &c., as relates to Form 112, is amended to read as follows:

Form 112.—Monthly report of wind-signal displays.

[5745, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT,
GENERAL ORDERS }
No. 22. } *Washington, June 23, 1886.*

I. The instructions to displaymen, as promulgated December 31, 1881, and March 1, 1882, are annulled.

II. The following Instructions to Displaymen, Signal Service, U. S. Army, are published for the information of all concerned. [5707, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

NOTE.—This copy of Instructions to Displaymen should be kept *neat and clean*. When a displayman is relieved from duty, or is temporarily absent from his station, he will turn over these instructions to his successor, obtaining his receipt for the same, and will forward this receipt, by mail, to the observer in charge of the section centre.

INSTRUCTIONS TO DISPLAYMEN OF THE SIGNAL SERVICE, U. S. ARMY.

INTRODUCTORY.

The Signal Service is charged by law with the announcement of the approach and force of storms on the northern lakes and the sea coast, and it devolves upon every member, or employé of the service, to exercise the utmost caution and diligence in executing this very important charge, not only because it is a duty each one owes to himself and the service, but more especially on account of the grave responsibility involved in advising as to the movements of shipping. It is a duty which cannot be too carefully or zealously performed.

Although a steady progress has attended this service in announcing the approach of wind storms since it was first attempted in 1872, yet there is room for further advancement, and it is believed that greater improvement can be made in this branch of the service by utilizing the many valuable discoveries recently made in meteorology, and by the assistance rendered by the observers and displaymen in exercising the utmost care in making and forwarding their observations and reports, and in promptly and correctly publishing, by signal or otherwise, the storm warnings received.

Warnings of the approach of wind storms will be published by the display of flags by day and lanterns by night, in connection with bulletins posted and reports furnished to newspapers, mariners, and others interested.

It is impracticable to establish full reporting Signal Service stations at all ports where it is necessary to display wind signals. Arrangements have been made to display them at the most desirable points by employing civilian displaymen to attend to the signals and render monthly reports on Form 112. Stations of this class are called display stations, and no meteorological observations are taken.

For the purpose of obtaining prompt communication by mail and telegraph, and to relieve this office of the routine duties in connection with the management of these stations, they are grouped and arranged in sections, and each section placed under charge of a neighboring Signal Service station, which is designated the section centre.

Orders to display signals are sent from the office of the Chief Sig-

nal Officer to the observer in charge of the section centre, who at once distributes them, by telegraph or telephone, to the several stations in his section.

INSTRUCTIONS.

1. The duties of displaymen consist in hoisting and lowering the proper signals, in compliance with orders received by telegraph or telephone, and in rendering monthly and quarterly reports.

2. In accepting the position, the displayman becomes the authorized agent of the United States Government, and is amenable to such laws as govern agents, and is liable to such penalties as are applicable to agents for failure to perform their official duties, or properly care for public property in their possession.

3. With a few exceptions, displaymen will receive all their instructions from, and render all reports and bills for services to, the observers in charge of their respective centres.

4. The display station at
is in
section, and will be under the supervision of the observer in charge at
and the receipt of all wind and direction signals will be acknowledged by telegraph or telephone to him.

5. Official communications by mail should be addressed to the Observer, Signal Service, U. S. Army, ;
by telegraph, Observer,

6. The equipment of each display station will consist of :

- 1 flagstaff and two sets of halyards.
- 2 cautionary signal flags.
- 2 direction signal flags.
- 2 red lanterns, tubular.
- 1 wind-vane, small.
- 1 bulletin frame.
- 100 penalty envelopes, large.
- 4 quires official letter paper.
- 3 sheets blotting paper.
- 1 bottle black ink.
- 1 bottle red ink.
- 12 pens.
- 2 pen-holders.
- 3 lead pencils.

1 paper pins.
 1 book, Forms 112.
 30 Forms 8.
 15 Forms 9.
 10 Forms 28 *c*.
 50 Forms 112.
 500 Forms 201.
 10 Forms 406.
 10 Forms 406 *b*.
 10 Forms 418 *h*.
 2 adhesive files (for filing copies of telegrams).

7. Timely application will be made to the section centre for such supplies as are required. The stationery above enumerated is the amount allowed for one year.

8. The flagstaff should be placed upon the roof of some building, if a good location on the ground cannot be secured, and equipped with two sets of halyards.

9. If, at any time, the staff upon which the display is made, becomes disabled, the displayman should take steps to secure the use of another, pending the repair of the injured staff, but in doing this he will incur no expense without being previously authorized by this office.

WIND-DIRECTION AND VELOCITY SIGNALS.

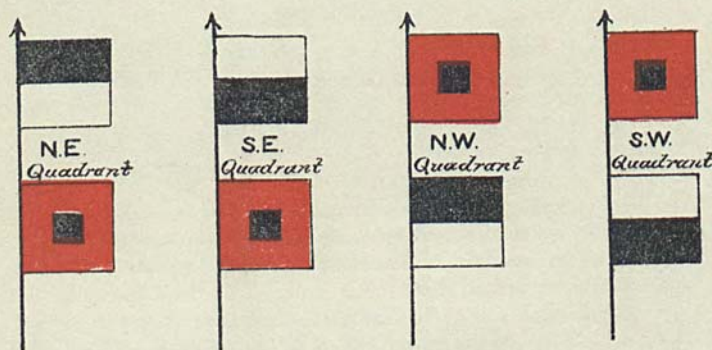
10. The signals adopted by this service for announcing the approach of wind storms at display stations are of two kinds, viz.:

1. The Cautionary Signal.
2. The Direction Signal.

11. The cautionary signal is a square red flag with square black centre by day, and a red light by night. It is hoisted when a wind-velocity of thirty-five (35) miles per hour, or over, is expected within one hundred (100) miles of the station where displayed. This velocity is considered dangerous to all classes of shipping.

12. The direction signal is a square flag composed of two horizontal stripes, one black and one white. It is never displayed except with the cautionary-signal flag, and indicates from what quadrant the dangerous wind is expected. For this purpose the compass is divided into the ne., se., sw., and nw. quadrants. Orders to hoist a direction signal will always state from which of these quadrants the dangerous wind is first expected. The direction signal is not displayed at night.

13. The direction signal will be displayed only with the cautionary signal and not more than three feet from it, in the following manner:



It will be noticed that the direction flag is *above* the cautionary flag for *easterly winds* and *below* for *westerly*, and that the black stripe is *above* the white for *northerly winds* and *below* for *southerly*. If the cautionary signal is hoisted alone, it indicates that the direction from which the dangerous wind may come has not been determined.

14. Orders to display wind signals will be received in about the following words, viz.:

- (1) "Nine forty a. m., hoist cautionary," or
- (2) "Eleven ten p. m., hoist cautionary and southwest," &c., or
- (3) "Eight fifty a. m., change southwest to northwest."

The following is an example of an order to hoist signals:

WASHINGTON, D. C., April 28, 1886.

(Forwarded from Boston.)

To Displayman, Marblehead, Mass.:

Nine forty a. m., hoist cautionary and northeast. Heavy storm in Tennessee, moving easterly.

HAZEN.

Wind-direction signals will be changed in about the following words, viz.:

"Eight fifty p. m., change northeast to southwest."

15. The displayman, upon receiving an order to hoist signals, will at once acknowledge its receipt, as explained in paragraph 18, then hoist the signal, and bulletin the order at some prominent place.

16. The hoisting or lowering of signals should be made with promptness.

17. Displaymen will receive with the order to hoist, and as often during the display as the Indications Officer considers necessary and practicable, through the section centre, a brief statement, giving the location of the storm-centre and the probable direction in which it will move. This information will be given as wide a circulation as the means in the possession of the displayman permit, and the needs of the public demand.

18. Orders to hoist wind signals will be acknowledged by telegraph or telephone in about the following words:

- (1.) "Hoist cautionary received ten a. m."
- (2.) "Hoist cautionary and southwest received eleven twenty p. m."
- (3.) "Change southwest to northwest received nine a. m.," &c.

Always use words instead of figures.

Example of an acknowledgment for a wind-signal order:

MARBLEHEAD, MASS., *April* 28, 1886.

To Observer, Boston, Mass.:

Hoist cautionary and northeast received eleven twenty a. m.

JONES.

19. After acknowledging the receipt of a wind-signal order, the proper flags, or lights, will be displayed.

20. Signals will never, under any circumstances, be hoisted, or lowered, except by orders from the section centre, or from this office.

21. During a wind-signal display, the lantern will be substituted for the flag about thirty minutes after sunset. The flag will be substituted for the lantern thirty minutes before sunrise.

22. Everything connected with the station must be kept in perfect order; the lanterns will be kept filled and trimmed, and there must be no delay in complying with all other orders to hoist or lower signals.

MONTHLY REPORTS.

23. A monthly report will be prepared on Form 112 at each display station. Each column will be filled up with the data called for by the headings, noting against each signal hoist as to whether it is a cautionary or a direction signal.

24. The wind velocity will be estimated according to the *Signal Service Scale*, given below.

Signal Service Scale.

0	.	.	.	.	.	Calm.
1 to 2	miles per hour,					Light wind.
3 to 5	"	"	"	"	"	Gentle.
6 to 14	"	"	"	"	"	Fresh.
15 to 29	"	"	"	"	"	Brisk.
30 to 39	"	"	"	"	"	High.
40 to 59	"	"	"	"	"	Gale.
60 to 79	"	"	"	"	"	Storm.
80 miles per hour, and above,						Hurricane.

25. The record will be made on Form 112 in the following manner: No perceptible wind, "calm"; wind blowing with a velocity of from 1 to 2 miles per hour, "light"; wind blowing with a velocity of from 3 to 5 miles per hour, "gentle," &c.

26. The direction from which the wind is blowing will be designated by the eight principal points of the compass: *north, northeast, east, southeast, south, southwest, west, northwest.*

27. Enter cautionary orders and resulting data in black ink, and direction orders and resulting data in red ink.

28. Enter each direction that prevailed during the display of a direction signal in the order in which it occurred.

29. An order to change the direction signal from one quadrant to another terminates the record to be made concerning the signal changed.

30. Newspaper clippings concerning storms or wind-signal displays will accompany Form 112. They should be fastened to the form with a paper-fastener, or pin, and not with paste.

31. Enter on this report the same data for storms without signals as for storms with signals, and state the fact that it is a *storm without signals.*

32. If a signal is up at the end of the month, the form will be forwarded with the information concerning the display that is available up to the end of the month.

33. If a signal is up at the beginning of the month, Form 112 will contain a complete history of the signal, including all the data concerning it found on the report for the previous month.

34. Form 112 will be forwarded to the Observer, Signal Service, U. S. Army, not later than the second of the succeeding month.

35. The original record of the signals will be kept by entering in the Form 112 book, from time to time, as they occur, all the facts in relation to each storm.

36. When, from any cause, a displayman is temporarily absent from his station, and cannot sign Form 112, he should instruct the person whom he has designated to attend to the duties during his absence to sign this form as "agent for displayman," but the bills and vouchers for services must, in all cases, be made and signed by the regularly appointed displayman.

37. The instructions given on the back of Form 112, as to the manner of preparing this report, must be strictly complied with.

38. The pay is 30 cents per day; each displayman to furnish, without extra cost to this service, illuminating oil, halyards, cotton-waste, matches and wicking, and to keep in repair the flags, halyards and lanterns. The flags, lanterns, official forms, penalty envelopes and stationery to be supplied from the office of the Chief Signal Officer.

39. Whenever a displayman is relieved, all halyards, oil, flags, lanterns, &c., in his possession at the time of such relief are to be turned over to his successor, and proper receipts, in duplicate, taken therefor, one copy of which must be forwarded with the last account for pay of the displayman relieved.

40. An itemized bill for services should be mailed to the Observer, Signal Service, U. S. Army,
....., at the end of each month during which services as displayman have been rendered.

41. The Chief Signal Officer reserves the right of withholding payment from any person who persistently neglects to make his reports accurately and forward them promptly.

42. Timely requisition will be made upon the Observer at
....., for blanks, stationery, &c., whenever such supplies are needed.

43. Displaymen will use the form of circular explained in paragraph 45 in soliciting bids for repairing the flagstaff when unserviceable, or for any articles needed, in connection with the display, where the exigencies of the service do not require immediate action.

44. As the law requires competition, bids for supplying the articles needed or rendering the services required must be obtained from tradesmen for all classes of services.

45. The following form of circular will be used in obtaining bids (a

supply of which will be furnished, with the necessary envelopes, from the section-centre upon application):

CIRCULAR.

SIGNAL OFFICE,

(Place)-----, (Date)-----, 188--

To-----

In accordance with the directions received from the Chief Signal Officer, I have the honor to inform you that sealed proposals, *in duplicate*, subject to the usual conditions, will be received at this office until ____ o'clock ____ m., on ----- the ____ day of ----- for -----

The government reserves the right to reject any or all proposals. Envelopes containing proposals should be marked "Proposals for -----," and addressed to the undersigned.

-----,
Displayman, Signal Service, U. S. Army.

PROPOSAL.

(Place of business)-----,

(Date)-----, 188 .

Sir:

In accordance with the foregoing, and subject to all the conditions and requirements thereof, ----- propose to ----- specified in the foregoing circular or specification at the following prices:

The back of the circular contains the following general instructions to bidders, which should be carefully understood:

Proposals should be prepared in strict accordance with the requirements made known in the advertisement, or circular of instructions to bidders; and copies of such advertisements, circular, or letter should be attached to the proposal and form part of it, and plans or specifications with which bidders may have been furnished be referred to in the proposal.

Numbers and prices should be written out *in words* as well as expressed in figures; but when a great variety of articles is required, as in case of stationery, hardware, &c., quantities and prices may, if the amounts involved are inconsiderable, and the forms of proposals so indicate, be expressed in figures only.

Specifications need not be written out in the body of the proposal. Their attachment to the proposal or the declaration that they form part of it will be sufficient.

Alterations by erasures or interlineations should be explained or noted in the proposal over the signature of the bidder.

Proposals are to be prepared without assistance from any person belonging to, or employed in, the military service of the United States. They should be made in duplicate, upon the forms and in the manner designated in the advertisement.

Proposals should be signed by the bidder submitting them, with his usual signature in full.

When a firm is a bidder, the member of the firm or agent who signs the firm name to the proposal should state, in addition, the names of the individuals composing the firm.

Any one signing a proposal as the agent of another, or of others, must file with it legal evidence of his authority so to do.

The place of residence of every bidder, with post-office address, county and state, district or territory, should be given after his signature.

All proposals should be enclosed in suitable envelopes, securely sealed, endorsed, and addressed as required by the advertisement, and be delivered to, or received by, the officer to whom addressed before the time appointed for the opening; and no responsibility shall attach to that officer for the premature opening of any proposal not so endorsed as to show that it is a proposal, and the particular purpose for which it is made.

46. In all cases requiring bids the above form of circular must be used, and the upper portion filled up, sending the circular in duplicate to each person asked to bid and enclosing one of the special form of envelopes in which the proposals are to be returned.

47. In filling up the circular, fix a date and *hour* when the bids are to be in, which must, in all cases, be at least ten days from the date of the circular, except where bids are asked for articles needed for current use during a fiscal year, in such cases the circular must indicate that the prices are to hold good during the fiscal year (which extends from, and including, July 1st of one calendar year, to June 30th, inclusive, of the succeeding calendar year), and a notice of at least thirty (30) days must be given.

48. In asking bids, each person must be given identically the same information, and if drawings or specifications are submitted to them. such drawings or specifications must be securely attached, with mucilage, to each copy of the circular.

49. Always invite at least three dealers or persons to bid (as many more as possible), always being governed by the circumstances of the case. Thus where thirty days' notice is given, the notice to bid must be very generally distributed. If there is only one dealer in the town, bids must be invited, but that fact must be noted on the list of persons invited to bid.

50. One copy of the notice, properly filled up, must always be posted in a conspicuous place where the public will see it, and the fact that this has been done must be noted at the bottom of the list of persons asked to bid.

51. In preparing the special form of envelope which is to be sent out

with the notices, mark each one "Proposals for" (filling up the blank), also indicate thereon the hour and date fixed upon when the bids will be closed.

52. As soon as each envelope containing a bid is received it must be endorsed plainly, in red ink, with the exact hour and date upon which it was received.

53. Any envelope containing bids received after the time fixed for them to be in has expired must not be enclosed with the other bids, but sent with a separate letter of transmittal, stating the circumstances of its receipt and the exact hour and date on which received.

54. Although all persons asked to bid may have sent in their proposals before the time fixed for them to be in, they (the bids) must be held until the very date and hour, specified in the notices, has expired.

55. When the time has expired the bids should be prepared for transmission, *unopened*, to this office, in a letter of transmittal, which must enumerate each and every paper enclosed.

56. The papers to be enclosed are :

1st. Form 418 *h*, with columns properly filled up, except, of course, as to cost of the articles, &c., applied for, which is to be left blank.

2d. List of persons invited to bid, in duplicate, which is to be counted as two enclosures.

3d. The bids sealed and properly endorsed.

4th. One copy, properly filled up, of the letter sent out asking for the bids. As a rule, the copy posted can be used for this purpose.

57. The letter of transmittal should show, in the lower left-hand corner, in red ink, the number of enclosures, as (..... enclosures).

58. The needs of the station must be anticipated in time to give the notice of ten days, or more, and to allow time for the papers to reach this office, and the authority to issue therefrom ; but at least one month would seem to give ample time. Notices of thirty days must be given in each and every case, unless the articles are needed immediately. Notices of ten days cover only the purchase of the article and the quantity for which bids were asked, and such bids cannot be used for purchasing additional quantities of the same article.

59. In the letter of transmittal, state the open market price of each article needed.

QUARTERLY REPORT.

60. Form 26 *c*, quarterly report of cautionary signal equipments and stores, will be made out in duplicate, at the end of each quarter, viz.:

March 31st, June 30th, September 30th, and December 31st, of each year. One copy will be mailed to the Observer, Signal Service, U. S. Army,; within ten days after the end of the quarter for which it is the report, and the other will be filed for future reference.

61. The following articles of government property are "expendable," and can be dropped from Form 26 c, as disposed of: blank forms and articles of stationery, which, by reason of appropriate application, are no longer available for inspection and condemnation. The other articles enumerated in paragraph 6 are not expendable, and in the event of any of them becoming unserviceable, by ordinary wear and tear, they must not be thrown away or destroyed, but laid aside to be disposed of by this office. This applies to broken lanterns and torn or unserviceable flags. They will be accounted for on Form 26 c, the same as if they were in a serviceable condition, and will not be dropped from this report by the displayman until he receives authority to do so.

62. Form 26 c will be made up in the following manner, after the headings have been filled in:

The data to be noted in the column headed "On hand from last report" will be copied from the column headed "On hand to be accounted for" from the previous Form 26 c. In the column headed "Received during month of" will be noted any property that has been received during the three months, under the proper heading. If the names of any of the articles received are not given in the printed list of property, they will be written in the blank spaces provided for the purpose, and the number or quantity of each noted in the proper columns. In the column headed "Total" will be entered, under each item, the amount on hand from last report, and what may have been received during the quarter. In the column headed "Issued, expended, and returned during the quarter" will be noted under each heading the amount of property that has been expended, returned to the section centre, or to this office during the quarter. In the column headed "On hand to be accounted for" should be entered under each heading the total property on hand, less the amount that has been returned to the section centre, to this office, or expended.

63. When a displayman is relieved from charge of a station he will make out as a final report of property three (3) copies of Form 26 c, one to be forwarded to the observer in charge of the section centre, under paragraph 34, one for file at the station, and the other he will

keep for his own information and protection in case discrepancies are found.

64. In making this final report of property the displayman will take up as "On hand from last report" all property for which he was accountable on his last Form 26 c, also such property as may have been received since the last quarterly report was rendered; carry the whole list down to the column for "Total;" then, after deducting all articles expended, or returned to date of transfer, he will report the remainder of the property as "On hand to be accounted for."

Immediately under the certificate, at the bottom of the form, will be written, "I certify I have this day received from (name of former displayman) the above mentioned articles in good condition, except as mentioned on margin.

(Name of new displayman.)....."

65. The newly appointed displayman, before signing this certificate, should verify each article on this report, to assure himself that everything is on hand as stated, as his signature to this certificate is the former displayman's receipt for the property.

[5707, Sig., and G. O. 8, 1886.]

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 23.

Washington, June 26, 1886.

Paragraph 233, "Instructions to Observers," &c., is amended to read as follows, to take effect July 1, 1886:

Bids must be obtained for all fuel (coal or wood) needed at a station, as required by paragraph 215 of these "Instructions," except where such fuel can be obtained in the manner contemplated by paragraph 1760½ Army Regulations, 1881.

Contracts for the fuel, based upon the bids, will be made in the form prescribed by law.

Requests for authority to purchase fuel must be made quarterly on Forms 418*h*, 1885 (old Form 23), and if approved, a letter of authority (Form No. 418*i*, 1886), will be issued by this office, but no purchase of fuel must be made until the receipt at the station of such letter of authority.

All fuel purchased for the use of the stations of the Signal Service must be inspected, and duplicate certificates of such inspection furnished with the bill and vouchers covering the purchase.

The *certificate* must be in the following form:

(Place)-----

(Date)-----

I certify that in accordance with paragraph 1902, Army Regulations, 1881, I have this day inspected the following fuel:

----- tons of coal (2240 pounds to the ton.)
----- pounds of coal.
----- cords of wood (128 cubic feet to the cord).
----- of wood.

----- as per bill herewith
delivered by-----, of-----,
on the----- day of-----, 188--, under contract dated
-----, 188--, for the use of the Signal Service, and that the
-----*----- correct, and the fuel is of good mer-
chantable quality.

(Signature)-----

(Rank)-----

* The words "weight" or "measurement," or both of them to be inserted, according to the character of the fuel inspected.

(To be in duplicate.)

The law (Section 3711 of the United States Revised Statutes) requires that each ton of coal must consist of two thousand two hundred and forty (2240) pounds, and each cord of wood must be of the standard measure of one hundred and twenty-eight (128) cubic feet, and inspectors must see that the fuel is up to this requirement.

By authority of the honorable the Secretary of War (2708, C. W. D., 1886), the officers, enlisted men or other employes of the Signal Corps, at the various stations, are designated to act as such inspectors, in analogy to the post quartermasters, provided for in paragraph 1902, Army Regulations, 1881.

The inspection should take place at the yard of the contractor, and after the fuel is loaded ready for delivery, but if such is not practicable, other arrangements must be made, but in no case is the Signal Service to be put to any additional expense.

The inspection must be made and the certificates signed by the ranking officer or non-commissioned officer on duty at the station; but if only one man is on duty at the station, the inspection will be made and the certificates signed by that man. [5971, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
Washington, June 28, 1886.

GENERAL ORDERS }
No. 24. }

Paragraph 218, "Instructions to Observers," &c., is amended to read as follows :

218. Under the conditions of the occupancy of buildings and rooms for offices by the Signal Service where leases are made, it is one of the stipulations of said leases that the landlords shall keep such buildings and rooms in tenable condition. Therefore, no expenses will be incurred at stations by observers for repairing the office rooms, or for painting or papering, where such buildings or rooms are not owned by the United States.

The observer will see that the requirements of the lease are fully understood and enforced, and when repairs are necessary a report of the same must be made to this office, in order that the landlord may be requested to take the necessary action to put the building or rooms in proper condition. [5970, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT,
Washington, July 12, 1886.

GENERAL ORDERS }
No. 25.

The following promotions in the Signal Corps, U. S. Army, are announced from the dates set opposite the respective names:

Corporal *Frank Ridgway*, to be Sergeant, July 7, 1886.
1st Class Private *Harry B. Boyer*, to be Corporal, July 7, 1886.
2d Class Private *William Burrows*, to be 1st Class Private, July 1, 1886.

BY ORDER OF THE CHIEF SIGNAL OFFICER:

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT,

GENERAL ORDERS }
No. 26.

Washington, July 14, 1886.

The use of the monthly constants given in General Orders No. 6, series of 1885, will be discontinued after July 31, 1886.

On and after August 1st, proximo, barometer readings will be reduced to sea-level and standard gravity by means of special tables which will be furnished each station from this office. In taking out the corrections from these special tables the "temperature argument" to be used will be obtained as follows:

Divide the sum of twice the *temperature* of the exposed thermometer at the hour of observation, plus the sum of the exposed temperature at the two preceding tri-daily observations, by four; the result will be the "temperature argument" to be used in taking out the correction for reduction to sea-level.

Example: For 7 a. m. observation of November 4th, any station—

Exposed temperature at 7 a. m. is 42°; then $42 \times 2 =$	84
Exposed temperature at 11 p. m. observation preceding	46
Exposed temperature at 3 p. m. observation preceding	62

Sum	192
-----	-----

$\frac{192}{4} = 48.0 =$ the "temperature argument."

Example: For 3 p. m. observation of November 4th—

Exposed temperature at 3 p. m. 67°; then $67 \times 2 =$	134
Exposed temperature at 7 a. m. observation preceding	42
Exposed temperature at 11 p. m. observation preceding	46

Sum	222
-----	-----

$\frac{222}{4} = 55.5 =$ "temperature argument."

Example: For 11 p. m. observation of November 4th—

Exposed temperature at 11 p. m. is 50°; then $50 \times 2 =$	100
Exposed temperature at 3 p. m. observation preceding	67
Exposed temperature at 7 a. m. observation preceding	42

Sum	209
-----	-----

$\frac{209}{4} = 52.2 =$ "temperature argument."

To obtain the "temperature argument" for the special 10 p. m. observation, the current temperature at that hour will be used, by doubling it and adding to the sum thus obtained the sum of the exposed temperatures observed at the 3 p. m. and 7 a. m. observations last preceding.

Example: Exposed temperature at 10 p. m. 51° ; then $51 \times 2 = 102$
 Exposed temperature at 3 p. m. observation preceding, 67
 Exposed temperature at 7 a. m. observation preceding 42

Sum..... 211

$\frac{211}{4} = 52.7 = \text{"temperature argument."}$

[6418, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT,
GENERAL ORDERS }
No. 27. Washington, July 16, 1886.

All observers at cotton-region stations using the *direct measurement rain-gauge* will record the *rainfall* in accordance with the following instructions, in lieu of paragraph 23, page 8, "Instructions to Cotton-region Observers of the Signal Service, U. S. Army" (General Orders No. 2, current series) :

The measuring-stick is graduated in inches and tenths of inches, and the rainfall will be recorded as actually shown on the stick, thus—
one inch of water in the gauge will be one inch of actual rainfall ; one-tenth of an inch of water, one-tenth of an inch of rain, &c.

Observers at cotton-region stations *not* supplied with the *direct measurement rain-gauge* will continue to record the *rainfall* as prescribed in paragraph 23 of the "Instructions to Cotton-region Observers," &c.

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
Washington, July 17, 1886.

GENERAL ORDERS }
No. 28.

The "Instructions to Observers," &c., are amended as follows:

After paragraph 222, insert—

222 *a.* Observers in charge of display, river, and cotton-region sections must obtain and keep on file, for their own information and protection, a memorandum receipt on Form 24 for each and every article of unexpendable government property issued to the special observers in their respective sections.

If such receipts are not on file at the present time, each observer will immediately communicate with the observers in charge of the special or sub-stations, requesting them to prepare at once a list of all property at said stations, signing the same and transmitting it to the observer in charge of the centre. This will be filed at the station, and whenever an observer in charge of a station (to which sub-stations report) is relieved, he will turn over these receipts to his successor.

When any article of government property of an unexpendable nature is issued from a section centre to a special station, it will be accompanied by a Form 24, with the name of the article, or articles, written thereon. This form will be sent with a letter of transmittal, directing the person to whom the property is sent to check the articles, sign the form, and return it to the section centre.

Special river and cotton-region observers will be required to mail Form 26 *d* quarterly to the observer in charge of the section centre, who will check, and see that all articles actually at the special station have been taken up and reported thereon.

All property issued to special stations must be accounted for by the observer in charge of the centre, on his quarterly report of property (Form 26). No article of an unexpendable character will be destroyed or disposed of, except by special orders received from this office.

Whenever an observer in charge of a special station fails to comply with the instructions of the observer in charge of the section centre, the latter will immediately report the fact to this office, with a full

statement of the circumstances connected with the case, in order that the necessary action may be taken.

Bills for services of observers in charge of special stations will in no case be certified to by the observer in charge of the section centre until the former shall fully account for the property at his station. [6159, Sig., 1886.]

Paragraph 155 is amended to read—

155. Communications written on letter paper will be folded in three equal folds, and on foolscap or legal cap paper in four equal folds, parallel with the ruling or top of the sheet. Observers in preparing manuscript reports, that do not partake of the nature of a letter, will write them on legal cap paper, and put in marginal references. Observers will not brief official letters to this office, except to fill upon the brief or first fold, at least *one inch* from the top, the *name* of the station, the *date* of the letter, the *name* of the observer (the surname being written first, as *Smith, John*), and his *rank*. The names of all persons occurring in the body of a letter must be given in full. [6104, Sig., 1886.]

Paragraph 156 *a* is amended to read—

156 *a*. In all correspondence based upon letters received from this office, observers will quote the reference marks of this office, as indicated upon the letter received, and usually in the following form: "In reply to your letter of the (No. P. D., or Obs. or Sig., as the case may be, 188....) I have the honor, &c."

When more than one letter on the same subject is written, each succeeding letter must refer by date, &c., to the previous letter. [6104, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
GENERAL ORDERS }
No. 29. } *Washington, July 20, 1886.*

The following-named officers are announced as assistants to the Chief
Signal Officer:

2d Lieutenant *Frank Greene*, Signal Corps, U. S. Army;
2d Lieutenant *John C. Walshe*, Signal Corps, U. S. Army;
2d Lieutenant *Benjamin M. Purssell*, Signal Corps, U. S. Army;
2d Lieutenant *Fielder M. M. Beall*, Signal Corps, U. S. Army;
2d Lieutenant *John P. Finley*, Signal Corps, U. S. Army;
2d Lieutenant *Joseph E. Maxfield*, Signal Corps, U. S. Army;
2d Lieutenant *Frederick R. Day*, Signal Corps, U. S. Army.

[13 Con., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
Washington, August 2, 1886.

GENERAL ORDERS }
No. 30.

I. Sergeant *Rudolph Peters*, Signal Corps, U. S. Army, is reduced to be 2d Class Private; to date August 1, 1886. [6840, Sig., 1886.]

II. The following promotions in the Signal Corps, U. S. Army, are announced; to date August 1, 1886:

1st Class Private *Willis L. Moore*, to be Sergeant. [6828, Sig., 1886.]

2d Class Private *Richard O' Dowd*, to be 1st Class Private. [6834, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER:

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
Washington, August 3, 1886.

GENERAL ORDERS }
No. 31. }

Upon the receipt of this order, the 11 a. m. and 7 p. m. observations will be discontinued at all Signal Service stations, except those named below :

Boston, Mass.,	Chicago, Ill.,
New York City,	Philadelphia, Pa.,
Prescott, Ariz.,	Saint Louis, Mo.,
San Francisco, Cal.,	Washington City.

[6715, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
Washington, August 10, 1886.

GENERAL ORDERS }
No. 32.

General Orders No. 31, current series, from this office, is amended to read as follows:

Upon the receipt of this order, the 11 a. m. and 7 p. m. observations will be discontinued at all Signal Service stations, except those named below:

Boston, Mass.,	Pike's Peak, Colo.,
Chicago, Ill.,	Prescott, Ariz.,
New York City,	Saint Louis, Mo.,
Mount Washington, N. H.,	San Francisco, Cal.,
Philadelphia, Pa.,	Washington City.

[6715 and 7211, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER:

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
Washington, August 11, 1886.

GENERAL ORDERS }
No. 33.

I. The following-named enlisted men, Signal Corps, U. S. Army, are reduced to be 2d Class Privates from the dates set opposite the respective names :

Sergeant *William H. Signor*, August 9, 1886.
Sergeant *John Sullivan*, August 9, 1886.
Corporal *Philip Moloney*, August 10, 1886.

[7027, Sig., 1886.]

II. The following promotions in the Signal Corps, U. S. Army, are announced from the dates set opposite the respective names :

Corporal *Edward A. Evans*, to be Sergeant, August 9, 1886.
1st Class Private *John T. Foy*, to be Sergeant, August 9, 1886.
Lance-Corporal *Charles J. Jones*, to be Sergeant, August 9, 1886.
1st Class Private *William J. Naylor*, to be Corporal, August 9, 1886.
1st Class Private *Stephen R. Richey*, to be Corporal, August 10, 1886.
2d Class Private *Thomas O. Pugh*, to be Corporal, August 11, 1886.
2d Class Private *Charles N. Kitchel*, to be 1st Class Private, August 3, 1886.

BY ORDER OF THE CHIEF SIGNAL OFFICER :

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT,
Washington, August 21, 1886.

GENERAL ORDERS }
No. 34.

I. The following-named Sergeants, Signal Corps, U. S. Army, are reduced to be 2d Class Privates, from the dates set opposite the respective names:

John D. Parker, August 7, 1886.

John J. Stephenson, August 21, 1886.

[7027, Sig., 1886.]

II. The following promotions in the Signal Corps, U. S. Army, are announced from the dates set opposite the respective names:

Corporal *Vernon P. Chappel*, to be Sergeant, August 10, 1886.

Corporal *Arthur B. Crane*, to be Sergeant, August 21, 1886.

1st Class Private *William M. Edmondson*, to be Corporal, August 11, 1886.

1st Class Private *Titus S. Townsend*, to be Corporal, August 12, 1886.

1st Class Private *William H. Hammon*, to be Corporal, August 21, 1886.

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER:

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 35.

Washington, August 26, 1886.

The following-named enlisted men, Signal Corps, U. S. Army, arranged in the order of merit, are especially commended by the Acting Chief Signal Officer for care and accuracy in connection with their meteorological duties:

Sergeant *Frederick Belford*, 0 errors in 6 months;
Sergeant *T. B. Harrison*, 0 errors in 5 months;
Corporal *S. R. Richey*, 2 errors in 6 months;
Sergeant *E. R. Demain*, 4 errors in 6 months;
Sergeant *Meyer Herman*, 4 errors in 5 months;
Corporal *H. F. Knabe*, 4 errors in 5 months;
Sergeant *L. M. Pindell*, 4 errors in 5 months;
Private *P. H. Fitzmaurice*, 6 errors in 6 months;
Sergeant *S. W. Glenn*, 6 errors in 6 months;
Sergeant *S. W. Rhode*, 6 errors in 6 months;
Private *W. V. Twaddle*, 6 errors in 6 months;
Sergeant *Patrick Connor*, 3 errors in 3 months;
Sergeant *F. P. Chaffee*, 7 errors in 6 months;
Sergeant *David Fisher*, 7 errors in 6 months;
Sergeant *Nelson Gorom*, 7 errors in 6 months;
Sergeant *Peter Wood*, 8 errors in 6 months;
Private *R. Q. Grant*, 8 errors in 6 months;
Sergeant *Allen Buell*, 7 errors in 5 months;
Sergeant *G. W. Felger*, 10 errors in 6 months;
Sergeant *James Kenealy*, 10 errors in 6 months;
Corporal *C. A. Read*, 10 errors in 6 months;
Sergeant *E. A. Beals*, 10 errors in 6 months;
Private *C. F. Von Herrmann*, 5 errors in 3 months.

[7601, Sig., 1886.]

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER:

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

GENERAL ORDERS }
No. 36.

Signal Office,
WAR DEPARTMENT.

Washington, September 1, 1886.

The following promotions in the Signal Corps, U. S. Army, are announced :

Corporal *Oscar N. Oswell*, to be Sergeant.
Corporal *Charles A. Read*, to be Sergeant.
1st Class Private *William O. Bailey*, to be Corporal.
1st Class Private *Charles L. Bozzell*, to be Corporal.
2d Class Private *Wilford M. Wilson*, to be 1st Class Private.

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER :

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant. Signal Corps. U. S. Army.

Signal Office,

WAR DEPARTMENT,

GENERAL ORDERS }
No. 37.

Washington, September 6, 1886.

To meet the requirements of General Orders No. 56, Headquarters of the Army, Adjutant General's Office, series 1886, General Orders No. 12, current series, from this office, is hereby revoked, and the following is published in lieu thereof:

All official telegrams of officers or agents of the government, offered at offices on the United States military or sea-coast telegraph lines for transmission to points on commercial lines, will be checked "O. B. & G. S." (preceded by the number of words contained in the message, including the address, body, and signature), and will be accounted for by both the sending and receiving offices as free messages. At *transfer offices* such telegrams will be turned over to the agent of the connecting commercial line, and receipts taken therefor, in the usual manner; but the connecting commercial lines are to understand that they receive such messages for transmission subject to settlement of the tariff thereon by the accounting officers of the U. S. Treasury Department. [7944, Sig., 1886, and 13214, P. D., 1886.]

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER:

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 38.

Washington, September 7, 1886.

I. The last paragraph on page 74, "Instructions to Observers," &c. (amended by General Orders Nos. 20 and 35, series of 1882, No. 78, series 1884, and No. 11, current series), is further amended to read as follows:

At wind-signal stations on the lakes, additional cipher words will be added to the tri-daily telegraphic report, to express the maximum velocity of the wind, and direction at time of maximum velocity, whenever that velocity since the preceding telegraphic report has equalled, or exceeded, twenty miles per hour.

Whenever a wind velocity of twenty miles, or more, per hour has been attained from more than one direction since the preceding telegraphic report, then each maximum velocity and its direction will be reported.

These words will form the last words of the report, except from stations sending sea swells, and will be taken from the regular "velocity" words in the cipher book; the direction being written in full.

Example:

Impress. Northeast. Improve. North. Impulse. East.

From all wind signal stations a word for the current velocity will always be sent in the same report with the maximum velocity.

II. After the last clause of paragraph 108u, "Instructions to Observers," &c., insert—

At coast stations, in addition to the wind data now reported under existing orders, when the direction signals have been lowered, the observer, in acknowledging the receipt of the order, will report the maximum velocity in each quadrant (in which the signal has been displayed) from the receipt of the order to hoist direction signals to, and including, the receipt of the order to lower.

III. The "Note" on page 76, "Instructions to Observers," &c. (amended by General Orders No 72, series of 1882 and No. 78, series of 1884), is revoked.
[7668, Sig. 1886.]

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER :

J. MITCHELL.

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

**GENERAL ORDERS }
No. 39.**

Washington, September 3, 1886.

Upon the receipt of this order, the 3 a. m., 11 a. m., and 7 p. m. observations will be discontinued at all Signal Service stations, except Washington City. [8088, Sig., 1886.]

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER :

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 40. }

Washington, October 12, 1886.

The following promotions in the Signal Corps, U. S. Army, are announced from the dates set opposite the respective names:

Corporal *William L. Widmeyer*, to be Sergeant, October 5, 1886.

1st Class Private *William A. Korts*, to be Corporal, October 5, 1886.

2d Class Private *George E. Adams*, to be 1st Class Private, October 1, 1886. [8884, Sig., 1886.]

2d Class Private *Edward B. Olney*, to be 1st Class Private, October 1, 1886. [8968, Sig., 1886.]

2d Class Private *Frank E. Linn*, to be 1st Class Private, October 1, 1886. [8023, Obs., 1886.]

2d Class Private *Albert L. Williams*, to be 1st Class Private, October 12, 1886. [8056, Obs., 1886.]

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER:

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 41. }

Washington, October 20, 1886.

The following-named 2d Class Privates, Signal Corps, U. S. Army,
are promoted to be 1st Class Privates from the dates set opposite the
respective names:

Louis Dorman, September 23, 1886.

William U. Simons, September 25, 1886.

John T. Eiker, October 8, 1886.

James C. Bushby, October 9, 1886.

BY ORDER OF THE CHIEF SIGNAL OFFICER:

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT,

GENERAL ORDERS }
No. 42.

Washington, October 22, 1886.

The first clause of paragraph 57, "Instructions to Observers," &c., is amended to read as follows :

MINIMUM THERMOMETER.

57. The brass support (a long, thin, narrow piece of curved brass, containing two screw-holes near the centre), to which the minimum thermometer is attached, will be secured to the board in the following manner :

The *first* screw-hole will be made eight inches from the inner edge of the bevel at the end of the board on the right, and five-eighths ($\frac{5}{8}$) of an inch below the inner edge of the bevel on the top of the board.

After securing the brass support to the board with the *first* screw, attach the thermometer by screwing it to the support, and let the lower end of the thermometer-scale rest in the notch cut in the brass support to the left. Then bring the left end of the support to such a position that the upper edge of the thermometer-scale will run exactly parallel with the edge of the board. The *second* screw will then be inserted, which will secure the brass support firmly to the board.

The minimum thermometer, when attached to the support in this manner, will then be exactly horizontal, which position is best adapted to prevent any movement of the index not caused by the actual changes in temperature. [9162 and 9205, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 48.

Washington, October 23, 1886.

The following will be inserted in the "Instructions to Observers," &c., after the last clause of paragraph 290:

290 *a.* Enlisted men will, upon receipt of orders from this office, take prompt steps to carry out their provisions; and when orders changing their stations or enjoining journeys are received, no applications for leave of absence, permission to delay *en route*, revocation of orders, or other indulgences, will be made, except in extreme cases (such as dangerous illness, &c.), and any man found guilty of attempting to disobey any part of the order, or to frustrate any of its provisions by external influence, or otherwise, will be promptly called to account by this office, and such steps taken as the case may warrant.

[9305, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER:

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

NOTE.—The following is a list of men of the Signal Service who have endeavored to delay in the execution of orders issued since August 1, 1886, greatly to the detriment of the service, and the fact has been noted on their records at this office:

Sergeant *Allen Buell.*

Sergeant *Samuel Applegate.*

Sergeant *Benjamin L. Goulding.*

1st Class Private *Wayland Bailey.*

1st Class Private *Fred W. Fickett.*

1st Class Private *Charles S. Gorgas.*

1st Class Private *Walter F. Robinson.*

1st Class Private *George H. Vining.*

1st Class Private *James H. Young.*

Signal Office,
WAR DEPARTMENT,
GENERAL ORDERS }
No. 44. *Washington, October 26, 1886.*

To enable the Chief Signal Officer to carry out, under his own immediate supervision, the intention of the Joint Commission of Congress, referred to in its report (H. R. No. 2740), the "Instructions to Observers," &c., until further orders, are amended as follows:

All men connected with voluntary or unpaid stations of the Weather Bureau, including those co-operating with State Weather Services, Meteorological Societies, and service that may be organized for giving warnings to stock interests of the plains, are specially placed under the direction of the officer in charge of the Review Division, and *all communications and orders to these men will be sent by that officer, and all communications from them will be addressed to him.* [9429, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER:

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 45. }

Washington, October 30, 1886.

I. Sergeant *Peter Wood*, Signal Corps, U. S. Army, is *especially commended* by the Chief Signal Officer for promptness in visiting the scene of a wreck on Lake Erie, off Manchester, Pennsylvania, near Erie, Pennsylvania, on October 16, 1886, for the purpose of opening communication with the vessel by signal. [8823, Obs., 1886.]

II. Sergeant *William H. Ray*, Signal Corps, U. S. Army, is reduced to be 1st Class Private. [8846 and 9246, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
Washington, November 1, 1886.

GENERAL ORDERS }
No. 46. }

The "Instructions to Observers," &c., are amended as follows :

The third clause of Paragraph 161, page 106, is amended to read—

Official communications from enlisted men of this service on duty at military posts will be forwarded to this office through the post commander *only* when they relate specially to that officer, to his administration of the post, or to any of the officers or enlisted men on duty thereat. [6387, '6675 and 7739, Obs., and 7999, Sig., 1886.]

Paragraph 70 (amended by General Orders No. 39, series of 1884) is further amended to read—

70. Anemometer record sheets must not be rolled. They will be folded once and mailed monthly to this office. Each package must contain the sheets from 11 p. m. of the last day of the preceding month to 11 p. m. of the last day of the month for which they are the record. They will be mailed *not later than the fifth of each month*. [8664, Sig., 1886.]

The first clause on page 80 is amended to read—

The duplicate copies of Form 203 (Telegraphic Weather Report) will be mailed to this office *monthly*. They will be wrapped securely in one package and forwarded *not later than the third day of each month*. [8664, Sig., 1886.]

The following note will be inserted on page 76, after "Translation," regular midnight report:

NOTE.—The dew-point will not be enciphered when it is the same as the reading of the exposed thermometer. [8664, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT,

GENERAL ORDERS }
No. 47.

Washington, November 2, 1886.

I. Sergeant *Thomas J. O'Brien*, Signal Corps, U. S. Army, is reduced to be 2d Class Private. [7027, Sig., 1886.]

II. 1st Class Private *Dudley B. Notson*, Signal Corps, U. S. Army, is promoted to be Sergeant. [7968, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

GENERAL ORDERS }
No. 48.

WAR DEPARTMENT,

Washington, November 10, 1886.

The following decision of the Post Office Department in reference to the use of penalty envelopes is published for the information and guidance of all concerned:

POST OFFICE DEPARTMENT,
OFFICE OF ASSISTANT ATTORNEY GENERAL,
Washington, D. C., March 26, 1886.

Extract.

* * * * *
1. There is no doubt that the officers of the Signal Service can legally send to any unofficial person a request to send such officer any information of an official character, and may supply such person with penalty envelopes, with return address thereon, to be used in forwarding such official information.

2. Such officer may furnish such unofficial person with sufficient envelopes, so addressed, to forward such information, daily or weekly, or at other intervals as the service may require, during a period to be specified in the officer's request for the information.

3. Any officer of the Signal Service entitled to use the penalty envelope may request of any volunteer observer to forward such information through a designated local agent as a conduit of transmission to the chief office, and may supply such volunteer or unofficial observer with penalty envelopes in which to forward such information, and may supply him with a sufficient number to forward such reports at specified intervals within a given time, such envelopes when furnished to bear the proper return address.

Such uses as above indicated I think to be within the scope of the law, in violence to neither its spirit nor letter. With these precautions in furnishing a supply to each, limited to the reports to be made him, with the return address on each in every instance, in having each observer requested by an officer of the service to forward the information through the designated channel, I think the Signal Service can practically secure the benefits of the free postage within the law as it is, and with little danger of misuse of the penalty envelope.

Very respectfully,

EDWIN E. BRYANT,
Assistant Attorney General, P. O. Dept.

Hon. WM. F. VILAS,
Postmaster General.

This office construes the meaning of the word "officers" to be all persons in the pay of this service, and said persons are authorized to use said penalty envelopes for distributing such official data as may be ordered by this office. [9826 Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER:

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

GENERAL ORDERS }
No. 49. }

WAR DEPARTMENT,

Washington, November 18, 1886.

I. The following promotions in the Signal Corps, U. S. Army, are announced from the dates set opposite the respective names :

1st Class Private *Theodore T. Moore*, to be Sergeant, November 10, 1886. [9815, Sig., 1886.]

2d Class Private *Ulysses G. Purssell*, to be 1st Class Private, November 17, 1886. [8973, Obs., 1886.]

II. Corporal *Charles H. Coburn*, Signal Corps, U. S. Army, is reduced to be 1st Class Private ; to date November 17, 1886. [10086, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER:

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

GENERAL ORDERS }
No. 50. }

WAR DEPARTMENT.

Washington, November 20, 1886.

I. The "Instructions to Observers," &c., are amended as follows:
Paragraphs 108*m*, 108*n*, 108*o*, 108*u*, 108*v*, 109, and 117*f* (amended by General Orders Nos. 11 and 38, current series) are amended to read—

108*m*. The receipt of orders to hoist or to change wind signals *will not be acknowledged by telegraph*. Orders to hoist wind signals will be acknowledged *by mail*. The letter of acknowledgment will be written immediately *after the display* of the proper signals or lights.

108*n*. Example of letter of acknowledgment:

(Station, Date)

To the Chief Signal Officer of the Army, Washington, D. C.

Sir: The order "Hoist cautionary" was received 10 a. m., August 25, 1886.

Very respectfully, &c.

or, the order "Hoist cautionary and southwest" was received 11.20 p. m., July 20, 1886; or, the order "Hoist on-shore" was received 2.47 a. m., June 3, 1886; or, the order "Change southwest to north-west" was received 10.23 a. m., September 7, 1886, &c.

The letter of acknowledgment will invariably be written and signed by the observer on duty at the time of the receipt of the order, and it will be mailed promptly. If written by an assistant the letter will be forwarded through the observer in charge.

108*o*. The proper flags or lights will be displayed immediately upon the receipt of an order to hoist wind signals.

108*u*. The receipt of the order "Down signals," or of an order to lower a direction signal, *will not be acknowledged by telegraph*.

The order "Down signals," or an order to lower a direction signal, will be acknowledged *by mail*. The letter acknowledging receipt will be written immediately after lowering the signal (except when the order reads "Acknowledge when the signal is lowered").

108*v*. Example of letter of acknowledgment:

(Station Date)

To the Chief Signal Officer of the Army, Washington, D. C.

Sir: The order "Down signals" was received 10.30 a. m., August 17, 1886.

Very respectfully, &c.

or, the order "Down southeast" was received 1.20 a. m., July 20, 1886, &c.

The letter of acknowledgment will invariably be written and signed by the observer on duty at the time of the receipt of the order, and will be mailed promptly. If written by an assistant the letter will be forwarded through the observer in charge.

109. As soon as an order to lower a cautionary or on-shore signal *is received* the signal will be lowered, provided the wind-velocity is below the verifying velocity.

117*f*. The receipt of a wind-signal order from proper authority in reference to displaying signals in a section will be acknowledged *by mail*. Observers in charge of section-centres will exercise strict supervision in the matter of such acknowledgments, and they will be accounted for on Form No. 225. [9687, Sig., 1886.]

Paragraph 121 *a* (amended by General Orders Nos. 58, 70, and 78, series 1884) is amended to read:

121 *a*. At stations selected by this office, a white flag with square black centre will be used to indicate that a cold wave is approaching. This signal will be hoisted upon the receipt of a message from this office to "hoist cold-wave signal"; and *lowered at the expiration of the time mentioned in the order to hoist*, unless an order is received to continue the display, or to lower the signal at once.

The receipt of orders to hoist cold-wave signals *will not be acknowledged by telegraph*.

A report by letter will be made immediately after each display, stating the exact time of the receipt of the order to hoist the signal and the exact time that the display terminated. No other data will be given in this letter.

Two copies of Form 112 *b* (Record of Cold-wave Signals) will be made out each month; one copy to be forwarded to this office, the other to be filed with the station records. In filling up the column for remarks, observers should be careful to omit nothing of value. If one sheet will not contain all the data, use a second. Clippings from local newspapers commenting upon the display or showing any advantages that may have resulted from the signal should be attached to this form.

Observers will communicate with the several railroad, telegraph, and canal officials at their stations, furnishing them copies of cold-wave orders, and endeavor to secure their co-operation in sending the cold-

wave messages to all points under their control without cost to the United States, as the good results of such wide distribution of the cold-wave dispatches is found to be of great benefit to the general public. Note will be made on Form 112*b*, showing the names of persons, firms, and companies to which each message was given. [9687, Sig., 1886.]

II. The "Instructions to Displaymen of the Signal Service, U. S. Army" (General Orders No. 22, current series), are amended as follows:

Paragraphs 4, 15, 18, and 19 are amended to read—

4. The display station at is in section, and will be under the supervision of the observer in charge at, and the receipt of all wind and direction signals will be acknowledged *by mail* to him.

15. The displayman upon receiving an order to hoist signals will at once display the proper flags, or lights, bulletin the order at some prominent place, and then acknowledge its receipt *by mail*, as explained in paragraph 18.

18. Orders to hoist wind signals will be acknowledged *by mail*, in about the following words:

- (1.) "Hoist cautionary received ten a. m."
- (2.) "Hoist cautionary and southwest received eleven twenty p. m."
- (3.) "Change southwest to northwest received nine a. m.," &c.

always use words instead of figures.

Example of an acknowledgment by letter of receipt of a wind-signal order:

MARBLEHEAD, MASS., April 28, 1886.

To the OBSERVER,
Signal Service, U. S. Army,
Boston, Massachusetts:

SIR: The order to "hoist cautionary and northeast" was received at eleven twenty a. m.

Very respectfully,

WILLIAM JONES,
Displayman.

19. The proper flags, or lights, will be displayed immediately upon the receipt of a wind-signal order.

After paragraph 17 insert—

17*a*. The receipt of an order to hoist or lower signals *will not be acknowledged by telegraph or telephone*.

After paragraph 20 insert—

20 a. The order "Signals down," or an order to lower a direction signal, will be acknowledged *by mail*, in about the following words:

- (1.) "Signals down received two ten a. m."
- (2.) "Down southeast received eleven forty a. m."

Example of an acknowledgment by letter of the receipt of the order "Signals down:"

RACINE, WIS., *May 15, 1886.*

To the OBSERVER,

Signal Service, U. S. Army,

Milwaukee, Wisconsin :

SIR: The order "Signals down" was received one thirty-five a. m.

Very respectfully,

THOMAS WILLIAMS,

Displayman.

[9687, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT,

GENERAL ORDERS }
No. 51.

Washington, November 24, 1886.

I. The following will be inserted in the "Instructions to Observers," &c., after paragraph 121 c:

121 d. At the stations named below, when marked atmospheric changes occur *after* the sending of any regular telegraphic report and one hour or more *before* making the next regular telegraphic report, which changes, in the opinion of the observer, indicate the *probable approach of a cold wave*, he will make a *special observation* and immediately send a *special telegraphic report* to the Chief Signal Officer of the Army.

This special report will contain the following data, viz.: Name of station, time of observation, barometer, temperature, direction of wind, state of weather, velocity of wind, maximum temperature, and minimum temperature.

The responsibility of deciding when the local or other conditions are favorable for the approach of a cold wave, and warrant the necessity of a special report, is placed upon the observer, who must exercise the utmost care in the discharge of this important duty.

The data contained in the special observations will be entered in the Daily Journal, and will also be copied verbatim in the Monthly Abstract of Journal. They will not be entered on Form 101.

Example of a special telegraphic report to indicate the approach of a cold wave:

Duluth.	Eleven.	Forty.	Mood.	Fiction.
Hinge.	Implore.	Fight.	Verb.	

Translation.

Station	Duluth, Minn.
Time.....	11.40 a. m.
Barometer, corrected reading	30.18 inches.
Exposed thermometer	48°.
Direction of wind and state of weather	West, clearing up.
Velocity of wind	18 miles.
Maximum thermometer	50°.
Minimum thermometer	42°.

List of stations authorized to render special telegraphic reports indicating the approach of cold waves:

Assinaboine, Fort, Mont.	Maginnis, Fort, Mont.
Bismarck, Dak.	Moorhead, Minn.
Buford, Fort, Dak.	Poplar River, Mont.
Custer, Fort, Mont.	Saint Vincent, Minn.
Deadwood, Dak.	Sully, Fort, Dak.
Duluth, Minn.	Totten, Fort, Dak.
Helena, Mont.	

[9939 and 9995, Sig., 1886.]

II. The following will be inserted in the "Instructions to Observers," &c., after paragraph 77:

77 *a*. The support for the standard wind vane will be fifteen (15) feet in length. In special cases where, from the nature of surrounding buildings and interfering obstacles, it is impossible to erect any particular kind of support, the length will be determined with reference to surrounding objects. In all cases *the vane will be above the top of the roof shelter*, and orders will not be issued for making a support without taking into consideration everything that would act as a detriment to the free circulation of air in the neighborhood of the vane. [10028, Sig., 1886.]

III. Paragraph 109 *b*, "Instructions to Observers," &c. (as published in General Orders No. 11, current series), is annulled. [10185, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER:

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
GENERAL ORDERS }
No. 52. Washington, November 30, 1886.

As approved by the Secretary of War, the following order (amending General Orders No. 4, current series) is promulgated:

Enlisted men of the Signal Corps, U. S. Army, acting as *marine agents, inspectors of railroad bulletins or cotton-belt stations, or on similar duty, and traveling under instructions from the Chief Signal Officer*, will, in the performance of such duty, be reimbursed for actual expenses necessarily incurred by them for street car fare, ferriage, rowboat hire, and other costs of short transits.

A detailed account, *under oath*, showing the daily expenses under each of the above items, and including the cost of the affidavit in the account, should be made upon the completion of the duty, or at the end of each month, and forwarded for audit and settlement.

The oath must be taken before a clerk of a court of record.

The account must be forwarded in duplicate, accompanied by a copy of the order or instructions under which the journey was performed and by Form No. 13 (Q. M. D.), properly signed.

These accounts to be paid by the proper disbursing officer from the appropriation "Signal Service Transportation." [10332, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

J. MITCHELL.
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT,

GENERAL ORDERS }
No. 53. }

Washington, December 2, 1886.

I. The following regulations, approved by the Secretary of War, will govern in the audit and settlement of accounts for telegrams relating to the Signal Service:

Bills for telegrams (circuit reports and messages), in the name of the proper telegraph company, should be rendered monthly to the Chief Signal Officer, accompanied by copies of all messages necessary to substantiate the same; the bills should show, in a condensed form, the important part of the messages, such as date, address, to what place, from what place sent, number of words, amount, and signature.

Upon the receipt of the bills by the Chief Signal Officer, they should be audited (in accordance with existing instructions) to determine whether or not the messages charged for were actually sent or received, and if the number of words, rate, and total amount are correct, and after approval by the Chief Signal Officer, the account will be paid by the Property and Disbursing Officer of the Signal Service, U. S. Army, except as below provided.

Accounts for messages sent wholly or partly over any telegraph lines constructed and operated along the bonded Pacific railroads, or which should have been so sent, should follow the course prescribed above, except that they will not be settled by the Property and Disbursing Officer of the Signal Service, but will be forwarded, after audit and approval, to the Third Auditor of the Treasury for settlement.

All telegrams on public business offered at offices on the United States military or sea-coast telegraph lines for transmission to points on commercial lines should be checked "O. B. & G. S." (preceded by the number of words contained in the message, including the address, body, and signature), and will be accounted for by both the sending and receiving offices as free messages. At transfer offices such telegrams will be turned over to the agent of the connecting commercial line, and receipts taken therefor in the usual manner; but the connecting commercial lines will be informed by the agent of the Government who transfers the messages that such messages are received for trans-

mission subject to settlement by the accounting officers of the United States Treasury Department.

Bills for such telegrams described above as are on military business should be rendered monthly by the telegraph companies to the Quartermaster General of the Army, Washington, D. C.

For such telegrams as are not on military business, the bills should be forwarded to the head of that executive department to whose business the telegrams relate.

The bills should show, in a condensed form, the important parts of the messages, such as date, address, to what place, from what place sent, number of words, amount, and signature, and should be accompanied by the original, or copies, of the messages substantiating the same.

The Signal Service agents at transfer offices on the United States military or sea-coast telegraph lines should prepare, monthly, a statement, and turn the same over to the operator or manager of the commercial company at the transfer offices.

The statement should be in the following form, and should accompany the bill for the month:

Statement of official business, telegrams of officers and agents of the Government transferred to and from Telegraph Company, at during the month of, 188..., checked "O. B. & G. S.," and subject to the settlement of tariff thereon by the accounting officers of the Treasury Department:

Date.	From—	Address.		Signature.	Number of words.
		Name.	Place.		

I certify that the above statement is correct.

(Signature)

(Rank)

To be in duplicate, one copy to be given to the manager of the commercial company at the transfer office, and the other to be mailed to the Chief Signal Officer.

[10457, Sig., 1886.]

II. The original copies of all telegrams which may originate at, and

may be sent from, offices on the United States military or sea-coast telegraph lines on military business, the cost of which is payable by the Quartermaster's Department, will be carefully preserved and forwarded by the operators in charge on the first day of each month, or as soon thereafter as practicable, to the officer of the Quartermaster's Department who may be assigned by the department commander to the duty of adjusting and settling telegraph accounts under the provisions of General Orders No. 65, Headquarters of the Army, Adjutant General's Office, series of 1886. [8939, Sig., 1886.]

BY ORDER OF THE CHIEF SIGNAL OFFICER :

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT,
Washington, December 3, 1886.

GENERAL ORDERS }
No. 54. }

The following rules governing the selection of enlisted men for promotion to be non-commissioned officers in the Signal Corps, U. S. Army, are published for the information of all concerned:

I. Only men who have served continuously for at least four (4) years will be eligible for promotion, except when having special qualifications or having rendered special services, and then only on the personal order of the Chief Signal Officer.

II. Only men who have served one (1) year on station (*i. e.*, outside of the District of Columbia) will be eligible.

III. Men on duty in the office of the Chief Signal Officer will not be considered as having any claim to promotion, since the compensation received by a private stationed in Washington City is almost equal to that received by a sergeant stationed elsewhere, and the men on duty in the office of the Chief Signal Officer have other privileges not enjoyed by men at stations outside of the District of Columbia.

IV. In naming candidates for promotion to be non-commissioned officers, the board on promotion (as constituted by paragraph 9, page 13, General Regulations for the Signal Office) will consider the services, education, abilities, and personal records of all men in the service who are eligible under these rules.

V. In exceptional cases, men on duty in the office of the Chief Signal Officer showing marked ability and great proficiency in the discharge of important duties may be promoted, provided such promotions be recommended by the chief of the applicant's division and not less than five (5) of the commissioned officers on duty in the office of the Chief Signal Officer.

The board on promotion shall meet annually, or as often as may be necessary, to select the men to be promoted under the provisions of the foregoing rules.

The promotion list (6412, Sig., 1886) dated July 7, 1886, and approved by the Chief Signal Officer, will have no additional names added thereto, nor changes made therein, except on account of misconduct, until exhausted by the promotion of all men named thereon.

[10475, Sig., 1886.]

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER :

J. MITCHELL.

2d Lieutenant. Signal Corps. U. S. Army.

OFFICIAL:

2d Lieutenant. Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT,

GENERAL ORDERS }
No. 55. }

Washington, December 4, 1886.

Form No. 213 (Repairman's Weekly Trip Report, sea-coast line) having been discontinued, *to date December 31, 1886*, so much of page 78 of the "Instructions to Observers," &c., as relates to the same will be annulled, and Form No. 214 (Repairman's Trip Report, United States Telegraph) will hereafter be used for the sea-coast lines as well as the United States military telegraph lines. [10347, Sig., 1886.]

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER:

J. MITCHELL,

2d Lieutenant. Signal Corps. U. S. Army.

OFFICIAL:

2d Lieutenant. Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
Washington, December 11, 1886.

GENERAL ORDERS }
No. 56. }

The last clause on page 63, "Instructions to Observers," &c., as amended by General Orders No. 87, series of 1884, is further amended to read as follows:

The occurrences of first light frost and first killing frost after August 1st in each year will be recorded under their proper date and time, and reported in the next telegraphic weather report, as described on page 79. If no killing frost is observed previous to the first minimum temperature below 32°, that condition of the temperature will be sufficient evidence on which to report a killing frost, and it will be reported by telegraph.

The dates of first and last light and killing frosts will not be reported by special letter. [10599, Sig., 1886.]

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER:

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 57.

Washington, December 13, 1886.

I. The following promotions in the Signal Corps, U. S. Army, are announced from the dates set opposite the respective names:

1st Class Private *Henry J. Coz*, to be Lance-Sergeant, December 1, 1886. [9693, Obs., 1886.]

1st Class Private *Charles W. Chambers*, to be Corporal, December 7, 1886. [10353, Sig., 1886.]

II. The following-named 2d Class Privates, Signal Corps, U. S. Army, are promoted to be 1st Class Privates from the dates set opposite the respective names:

Arthur Thompson, November 16, 1886. [10483, Sig., 1886.]

Isaac W. Brewer, December 1, 1886. [10483, Sig., 1886.]

Elisha C. Vose, December 1, 1886. [10483, Sig., 1886.]

Charles F. Schneider, December 1, 1886. [10483, Sig., 1886.]

Heber W. Olmsted, December 1, 1886. [10483, Sig., 1886.]

Elbridge M. Ravenscroft, December 1, 1886. [10483, Sig., 1886.]

Henry Schneider, December 1, 1886. [10483, Sig., 1886.]

George Reeder, December 1, 1886. [10483, Sig., 1886.]

Patrick Bolton, December 4, 1886. [8339, Obs., 1886.]

Richard L. Rotchford, December 8, 1886. [10565, Sig., 1886.]

John D. Croasmun, December 8, 1886. [10564, Sig., 1886.]

Edward A. Hanner, December 8, 1886. [10564, Sig., 1886.]

Henry C. Bate, December 8, 1886. [10591, Sig., 1886.]

Patrick H. Mell, December 8, 1886. [10591, Sig., 1886.]

Richard W. Haworth, December 10, 1886. [10667, Sig., 1886.]

William Morey, jr., December 13, 1886. [10725, Sig., 1886.]

George E. Lawton, December 13, 1886. [10725, Sig., 1886.]

John Moriarty, December 13, 1886. [7214, Sig., 1886.]

Millard F. Holland, December 13, 1886. [7214, Sig., 1886.]

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER:

J. MITCHELL.

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
Washington, December 21, 1886.

GENERAL ORDERS }
No. 58. }

To carry out the orders of the Honorable Secretary of War, as contained in endorsement dated March 12, 1886 (2782, Sig., 1886), "Instructions to Observers," &c., paragraphs 437 to 461, inclusive (as amended by General Orders Nos. 62 and 76, series of 1882, and Nos. 6, 27, 34, and 57, series of 1883, and Nos. 63 and 74, series of 1884, and No 14, series of 1885, and No. 19, current series), are hereby annulled, and the following paragraphs are substituted therefor; to take effect January 1, 1887:

1. The receipts for all business done on the United States military and sea-coast telegraph lines will be divided into what is known as "this line" and "other lines" funds. The Act of Congress approved March 3, 1883, making appropriations for the maintenance and repair of the military telegraph lines, provided that on and after the 1st day of July, 1883, the moneys received for the transmission of private dispatches over any and all telegraph lines owned or operated by the United States should be paid into the Treasury of the United States, as required by section 3617 of the Revised Statutes.

2. The term "this line receipts" applies to moneys received for private dispatches sent over any portion of the telegraph lines owned or operated by the United States, and is public money.

3. The term "other line receipts" is applied to money collected on account of the commercial companies, and is in nowise Government money, and is not, therefore, governed by the requirements of the Act of March 3, 1883, quoted. In order, therefore, that correct accounts may be rendered of both "this line" and "other lines" receipts, in accordance with the intention of the law, it is ordered that separate and distinct forms, accounts, and records be kept for each class of receipts, namely: one set for "this line," and another distinct and complete set for "other lines," moneys. So far as the forms, books, and accounts go, they will be similar, unless otherwise specified (see paragraphs 12 and 13); the only change will be where the words "this line" or "other lines" occur, the words "this line" or "other lines" will be stricken out, as the case may be, according as to whether the form, account, or record is for "this line," or "other lines," moneys.

4. All messages not entitled to be sent free under frank, or as official business, must be prepaid, or guaranteed by deposit, or otherwise.

5. All telegrams on *public business* offered at offices on the United States military or sea-coast telegraph lines must be checked "O. B. & G. S.," preceded by the number of words contained in the message, including the address, body, and signature, and will be accounted for, by both the sending and receiving offices, as free business. At transfer offices such telegrams will be turned over to the agent of the connecting commercial line, and a receipt taken therefor in the usual manner; but the commercial lines will be notified by the agent of the Government who transfers the messages that such messages are received for transmission subject to settlement by the accounting officers of the United States Treasury Department.

6. The Signal Service agents at transfer offices on the United States military and sea-coast telegraph lines will prepare monthly a statement, and turn the same over to the operator or manager of the commercial company at the transfer office. The statement will be in the following form, and should accompany the bill for the month:

Statement of official business, telegrams of officers and agents of the Government, transferred to and from Telegraph Company, at during the month of 188....., checked "O. B. & G. S.," and subject to the settlement of the tariff thereon by the accounting officers of the Treasury Department:

Date.	From—	Address.		Signature.	No. of words.
		Name.	Place.		
.....
.....
.....
.....
.....
.....
.....

I certify that the above statement is correct.

(Signature).....
(Rank).....

To be in duplicate; one copy to be given to the manager of the commercial company, the other to be mailed to the Chief Signal Officer.

7. Whenever private messages are ordered to be forwarded by mail or messenger, the operator in charge must collect, in addition to the

regular charges, the amount required for postage, or for the special delivery. Moneys received on account of mailed messages, or for special delivery charges, must be taken up on a statement to be known as "Statement of moneys received for postage or special delivery," indicating the amount in each case and the office at which the messages were ordered to be mailed, or special delivery charges to be paid. The receiving office will render a statement to be known as "Statement of moneys expended for postage or special delivery," showing the amount of postage paid on mailed messages, or for special delivery charges, being very careful to state the name of the office ordering the same. Receipts and payments for special delivery must be entered separately from those for postage, and every receipt and expenditure must be noted. The money received or paid out for postage or for special delivery to be debited or credited, as the case may be, on the cash book "other lines," and also taken up on the account current "other lines," to which latter the statements before mentioned will be the vouchers.

8. Messages addressed to points on other lines will be checked against the office on this line at which they are transferred. Transfer offices will not be checked with the other line tolls, for messages received paid from, or sent collect to, offices on other lines. In both these cases the military line tolls only will be checked against the transfer office.

9. The office accepting and sending a message checked "collect" is responsible for the charges on the same. The one exception to the rule is the case in which the message is an answer to a paid message received. In this case, it is the duty of the operator sending the said paid message to guarantee the charges on the answer should any be sent.

10. The charges on "collect" messages should be collected on delivery. In case payment is refused, the receiving office will at once notify the transmitting office, by telegraph (an office message), and the latter will collect the charges from the party sending the message.

11. An office having sent a "collect" message on which payment has been refused, will, under no circumstances, request that it be not checked, but the message must be entered upon the books of the sending and receiving offices, precisely as if the charges had been collected; the manager of the receiving office taking credit on his account current for the amount, and filing therewith a statement of uncollected messages, accompanied by a copy of every "uncollect" message, and a copy of the *office message* notifying the sending office of the failure to

collect. The office receiving a collect message on which it has, after diligent effort, been unable to collect the charges, will, in order to be allowed credit therefor, *show that the sending office was duly notified by telegraph* that the message was uncollectible. The transmitting office will then collect the charges from the sender of the message, and account for the amount on his account current under "sundry receipts," filing therewith a statement of guaranteed messages, and enclosing a copy of each message with the latter. Checks for guaranteed messages must always accompany the statement.

12. A "Telegraph Register" or "Day Book" will be kept at each office. All messages will be carefully sorted for each day, and those for each office will be entered in the telegraph register by themselves. The amount for each "paid" message sent and each "collect" message received will be entered in the register in the column headed "local cash," and also in the column headed "other offices check," and the tolls *for this line and other lines*, embraced in the total, will be entered, each under its appropriate heading. Messages received paid from other offices, or sent collect to other offices, will be entered under the heading "this office checks other offices," and the amounts *for this line and other lines* will be entered in their appropriate columns.

After messages are sorted for the day's business they will be entered in the telegraphic register in the following order :

1st. Commercial business.

2d. Free business (which includes official and D. H. business).

The offices with which business under either of these heads is had will be arranged alphabetically: the commercial or free business with each office entered, and the toll for each class of business footed up for each office by itself. In the transaction with any particular office there will be entered: 1st, the messages received at the office making up the register. 2d, the messages sent from the office making up the register. A message sent free over this line, but paid over others, will be entered twice, once as a free message, and again as a commercial.

A message sent upon which tolls are to be collected on other lines only will be entered as free but not as commercial.

In cases of messages being paid over "this line" and free over "other lines," they will be entered only as commercial messages.

Messages received collect for "other lines," but free over "this line," will be entered as free and again as commercial.

Paid messages received from "other lines," which are free over "this line," will be entered only as free. Free messages will be entered in the same manner as paid commercial messages, *i. e.*, all free business will be entered as if prepaid, leaving the column "local cash" blank.

13. The total footings of the daily commercial business done with each office, as shown by the telegraphic register, will be posted to the check ledger, and at the end of the month the daily entries in the latter will be added together, and the total entered on the check report against the name of each office.

The name of the office making up the check ledger will not be placed in any of the blank spaces intended for the insertion of office names at the top of the pages of the ledger.

The column "this office receives" is taken from the column "other offices check" in the register. "This office" in the heading of the check ledger *refers to the office making up the ledger.*

14. A check report for each class of tolls, namely, one for "this line" and another for "other lines" tolls must be kept. Each of them will be made up from the monthly sum total of the respective check ledgers, and will be forwarded with the account current. On the check report for "this line" will be entered separately for each station the total amount of business for "this line" done with each office during the month, and a similar record will be made in the check report for "other line" business. Under the heading "this office checks other offices" will be entered, opposite each station, the total amount of tolls for "this line" checked against each, for telegrams received paid at the office making the check report, and similarly the office making the check report will enter under the heading "other offices checks this office" the amount due for telegrams sent paid from other offices. A similar record will be made for other line tolls in the check report prepared for that purpose. On the back of each check report, both for "this line" and "other lines" tolls, should be entered the quantity of business done during the month, as follows: Number sent paid, number sent collect, received paid, received collect; total. The free messages should also be indicated, showing the number sent, the number received, and the total. Each of the reports and forms, both for "this line" and "other lines" moneys, must be made in duplicate, one copy to be retained at the office, and the other to be forwarded to the officer in charge of the section.

15. A cash book will be kept by each operator and also by the offi-

cer in charge; a separate and distinct cash book for each class of receipts, namely, one for "this line" and another for "other lines" receipts. In no case should an entry be made in the cash book for "this line" receipts of any tolls belonging to "other lines," and *vice versa*. The cash book will show on the debit side exactly what *cash* has come into the possession of the person keeping the same, day by day, and on the credit side all remittances. The entries will be made daily, and the book capable of being balanced at any time. The total amount of cash received, both for "this line" and "other lines" tolls, should exactly balance the amounts as shown by the two cash books, namely, for "this line" and "other lines," and also balance the total amount as shown in the column "local cash" of the "Telegraph Register."

16. The operator in charge of each telegraph station on the United States military or sea-coast telegraph lines, will make a daily report to the officer in charge of the lines, of the total cash on hand in his office for the preceding day whenever he can telegraph reports without expense to the United States. A separate report must be made for the amount of "this line" cash, and a similar report for the amount of "other lines" cash. Remittances will be made to this office or to the officer in charge, as the case may be, whenever during the month the total amount on hand of both "this line" and "other lines" moneys reaches the sum of twenty dollars, and at the close of the business on the last day of the month. In no case will a greater sum than twenty dollars be forwarded in one and the same package, except when a remittance of not exceeding twenty-five dollars can be made entirely by pay-checks, and on the same day on which the twenty-dollar remittance should have been made. Accompanying each remittance should be a form showing the total amount of "this line," and a similar form showing the total amount of "other line," receipts embraced in the remittance. This form should be in duplicate, as follows:

(Station).....
 (Date).....
 I certify that I have this day transferred to (naming the officer), the sum of.....
 dollars, being for "this line" tolls on hand at this station at the close
 of business on the..... day of....., 188...
 (Signature).....
 (Rank).....

17. Also, in case any moneys belonging to "other lines" tolls are remitted at the same time, a blank, in duplicate, as follows:

(Station)
 (Date)
 I certify that I have this day transferred to (naming the officer), the sum of.....
 dollars, being for "other lines" tolls on hand at the close of business
 on the.....day of....., 188...
 (Signature).....
 (Rank).....

18. There should also be enclosed forms in duplicate, as follows :

(Place).....
 (Date).....
 Received from (naming the operator in charge), Signal Corps, U. S. Army, in
 charge of the United States telegraph office at....., the sum of
dollars, being for "this line" tolls on hand at the close of business
 on the.....day of....., 188...
 (Signature).....
 (Rank).....

19. In case any money belonging to "other lines" tolls is remitted
 at the same time, forms in duplicate, as follows, should also be en-
 closed :

(Place).....
 (Date).....
 Received from (naming the operator in charge), Signal Corps, U. S. Army, in
 charge of the United States telegraph office at....., the sum of
dollars, being for "other line" tolls on hand at the close of business
 on the.....day of....., 188...
 (Signature).....
 (Rank).....

20. These latter forms (paragraphs 18 and 19), being receipts, will be
 signed by the officer to whom the money is remitted and at once returned
 to the operator in charge of the station remitting the money, and will
 be used by him as vouchers to his accounts current, respectively for
 "this line" and "other line" tolls. The officer will retain the dupli-
 cate invoices, attaching one copy to his retained and the other to his
 accounts which go forward to the Chief Signal Officer, respectively for
 "this line" and "other line" tolls.

21. The balance on hand, after remitting twenty dollars, will be re-
 tained until a sufficient sum has been collected to make another remit-
 tance of twenty dollars, or until the end of the month. At the close of
 business on the last day of the month, the total amount remaining on
 hand must be forwarded in one or more packages not exceeding twenty
 dollars each.

22. Remittances to this office will be made whenever practicable, by
 pay-checks, or drafts of a U. S. disbursing officer made payable to the
 Property and Disbursing Officer, Signal Service, U. S. Army, provided
 no expense to the Signal Service is incurred in obtaining such drafts.
 In making such remittances checks or drafts should be endorsed in the
 following manner:

Pay to the order of the Property and Disbursing Officer, Signal Service, U. S. Army.

(Signature).....

23. The signature must correspond in every respect to the name as it appears on the face of the check.

24. In making remittances, the letter of transmittal must state what portion of the amount belongs to "this line," and what portion to "other lines."

25. Remittances to officers in charge, other than the Property and Disbursing Officer, will be made, so far as possible, by pay-checks in the same manner as described above, changing the endorsement to correspond with the name of the officer in charge of the respective lines.

26. All remittances of drafts, checks, currency and coin must be forwarded by registered mail. A supply of stamps for registering purposes will be furnished by this office on application; these stamps will be duly invoiced and must be taken up and accounted for on the property returns, and must not be used for any other purpose except as provided for in this paragraph.

27. When remittances are made in coin or currency, special care should be taken to wrap the coin or currency compactly, and then enclose the same in a perfectly secure manner. If envelopes are used it should be seen that they are well gummed, securely fastened, and are sufficiently stout, so that they will not be injured in transmission; linen-lined envelopes, for this purpose, will be furnished upon application.

28. All moneys received as "this line" tolls on the United States military telegraph lines will be deposited by the officer in charge in some designated depository for public funds, and, when necessary, will be sent to such depository by registered mail.

29. The amount of all moneys received by officers in charge, on account of "other line" tolls, after an adjustment of the accounts between the commercial companies and the United States, will be turned over to the commercial companies, and receipt taken therefor, in the following form:

Statement of amount of "other line" tolls collected at offices on the
 telegraph lines, on account of telegrams transferred to and
 from the Telegraph Company, from
 to 188..

[illegible]

(Signature)
(Rank)

Received at 189... of
Signal U. S. Army, the sum of dollars and
..... cents, in full of the above.

Receipt for amount paid other lines.
Voucher No.

Paid to Telegraph Co.
For month of, 188...

\$.....100
Paid in currency.

Date, 188...

30. In making remittances to telegraph companies the money will be securely done up and sent by registered mail, but it must be expressly understood that the United States in no way holds itself responsible for any losses occurring, either through the infidelity of any of its employes or for losses in transit to the commercial companies; these are risks which the commercial companies must assume in its dealings with the United States, but every precaution must be taken to guard against any such losses, and the same care will be exacted in handling "other line" tolls as is required in case of moneys belonging to the United States.

81. Immediately on the first day of each month each operator in charge will prepare an account current for the preceding month, in triplicate, one copy to be retained, the other two forwarded to the officer in charge, making one account current for "this line" receipts, debiting thereon only the moneys actually received by him during the

month belonging to "this line." On this account current no credits whatever must be taken, except for cash remittances to this office or the officer in charge; the total of such remittances must balance the total "this line" receipts for the month.

32. Another set of accounts current should be prepared, in triplicate, one copy to be retained the other two forwarded to the officer in charge, debiting thereon, in the proper columns, "other line" tolls, and all sundry receipts, except such as may have been received on account of "this line" tolls on guaranteed messages. Credit will be taken on this account current for authorized expenditures, such as postage, special deliveries, and "other line" tolls on uncollected messages.

33. Neither of these accounts current should be held after the first day of the month, but will be immediately made up, as each operator should report *only the moneys actually received by him during the month* on either account current.

34. These rules apply as well to the accounts current of the officers in charge as to those for each station, except, of course, officers in charge will make their accounts in duplicate and forward one copy to the Chief Signal Officer, retaining complete copies for the files of the office.

35. In all cases when special authority has been given directing the payment of money from the "other line" tolls of a station, a copy of such authority must be filed with the account current, and also the receipt (in duplicate) of the party to whom payment was made; this receipt will be in the following form:

(Place)
 (Date) 188....
 Received from on account
 of the sum of
 dollars and cents.
 (Signature)
 (To be in duplicate.)

36. Receipts for the payment of moneys must be signed under the hands of the person or firm to whom the money is due, and was paid. The affix "per" or "by," or the initials of a name to the signature of a receipt, renders it inadmissible; if the receipts are signed by mark, the signature must be witnessed by two persons, neither of whom should be the person in whose favor the receipt is given.

37. In case of money paid to a corporation or company, the receipt will be signed under the hand of the treasurer, and to his signature will be added his title.

38. The copies of each account current must be complete as to all accompanying papers.

39. When money is paid for special delivery of any kind, signed receipts will be sent to the officer in charge, as for any other authorized expenditure. In entering these receipts on accounts current, only the name and amount will be given. When the receipts exceed the expenditures, the remittances during the month and at its close must be sufficient to balance the account.

40. The accounts of each station, as well as of officers in charge, will be sent, when received at this office, direct to the Examining Officer, except for stations under the control of the officer in charge at this office; in which event, the accounts and forms belonging thereto will be sent to that officer. After examination by him, and the adjustment of errors, if found, they will be sent to the Examining Officer for further examination. The accounts current for "other line" receipts will be filed in the office of the Chief Signal Officer, and will not be forwarded to the Treasury Department. Those for "this line" receipts will be forwarded to the Treasury Department for final settlement.

41. At transfer offices, *and at transfer offices only*, the following directions will govern:

42. The statements of guaranteed and uncollected messages made to accompany the account current will include only the local guaranteed and uncollectible messages.

43. The *transfer* guaranteed and uncollectible messages will be accounted for on separate statements, which will accompany the bills rendered by each line against the other, to be sent with the monthly papers from the transfer office to the officer in charge.

44. The transfer statement of guaranteed messages will include all transfer messages which should be accounted for as guaranteed at points *this line*.

45. The transfer statement of uncollectible messages will include all transfer messages returned as uncollectible at points on *this line*.

46. The total amount of the last-named statement will be taken up on the account current at the transfer office under "sundry receipts refunded from other lines," and on the other side of the same account current credit will be taken in one item for the total amount of the bill of *this line* against the other line. This bill will be itemized as follows:

Amount due on regular transfers.
 Amount due on uncollectible messages.
 Amount due for special delivery.
 Amount due for postage.

47. The amounts due from the other line for special delivery and postage will be taken up under sundry receipts with the local receipts under those heads, as prescribed for offices not transfer offices, a corresponding credit being obtained on the other side of the account current by the amount due from other lines as per bill.

48. The transfer statement of guaranteed messages will accompany the bill of the other line against this line, which should be itemized, as described above.

49. The discrepancies found to exist between the check report of various offices when examined by the officer in charge will be taken cognizance of, and transferred to the "Record of check errors."

50. In the examination of the check report of various offices which check one another, should any discrepancies be discovered, each office at variance will be sent an error sheet showing the discrepancies; these error sheets will be made separately for "this line" and "other line" tolls.

51. Immediately on the receipt of an error sheet at a station, the operator in charge, whether or not he was on duty at the station during the period referred to in such error sheet, will at once forward, by mail, to each office with which the discrepancy is shown to exist, a postal error card, on which will be entered the total amount of business done each day between his own and the disagreeing offices during the month to which the error sheet refers.

52. The operator receiving an error card will, without delay, compare the daily record of business shown thereon with his check ledger and telegraphic register, and enter, on Form (U. S. Telegraph), the dates on which the discrepancies occur, and show by copies of the messages exchanged on those dates that the amounts checked against the office on such dates are correct. This form, with copies of messages and any other information necessary to its explanation, together with the error card, will be returned to the office from which it was received; and the latter office after receiving replies from all disagreeing offices, will, in case of deficiencies, and if he be responsible therefor, remit to the officer in charge the amount due, together with invoices and receipts, forwarding at the same time all papers relating to

the error sheet in question. If the operator then in charge of the station be not responsible for the deficiencies, the papers will be forwarded to the officer in charge, with a statement showing to whom the errors are properly chargeable.

53. If the operator receiving an error card finds, on comparing the statement of business shown thereon with his record, that he has *over-checked* the office sending the same, an acknowledgment, stating particularly how the overcheck occurred, will be forwarded to the operator, returning at the same time the error card. Acknowledgments must be written on letter paper and signed with the full name and official designation of the operator in charge making them. No alterations will be made in the error sheet by operators; but the discrepancies shown must be accounted for either by satisfactory explanations or remittances. In returning the error sheet to the officer in charge, the operator will note opposite each station under the heading "Explained," or "Paid," the several amounts covered by remittances or explanations. Error sheets must be returned to the officer in charge, with explanations or money to cover the deficits, with the least possible delay after their receipt. Where an error sheet is unduly delayed through the negligence of operators to reply to error cards, the fact will be reported by telegraph to the officer in charge.

54. Operators in charge are enjoined to exercise the utmost care to see that the statements submitted with error sheets in explanation of deficits are clear and explicit and conform strictly with the records of the office.

55. The "Record of check errors" is a book in which a complete history of all check errors will be kept by the officers in charge. This will render unnecessary the rendering of abstract of check errors and abstract of overchecks. Check errors will be entered in the "Record" as fast as receipt of check reports will allow. Entry for date of discrepancy will be made in the left-hand column. Immediately upon the receipt of moneys on check errors they will be posted in the proper cash-books. They will also be taken up on the account current of the officer in charge, for the particular class of tolls to which they belong, for the month in which they are received, under the head of "Received on account of check errors," giving the month in which errors occurred and name of office. A separate book for each class of tolls should be kept.

56. A private dispatch received at a transfer office from "other lines,"

for transmission over "this line," on which the entire tariff has been paid to the "other line" office receiving the message, will be forwarded to its destination, but the United States operator at the transfer office will indicate in red ink, on his Telegraph Register, in a column headed "Tariff due from other lines," the amount of "this line" tolls due from the commercial company, and make up a statement at the end of the month of such messages, showing date received, number of words, to what place sent, and amount of "this line" tolls; these statements will be known as "statements of amounts due from other lines," and must be made in duplicate, one copy to be retained, the other to be forwarded to the officer in charge, who will use them in making settlement with the commercial company of the tolls due to it, collected by the United States. Thus where the amount collected by the United States, on account of "other line" tolls, and payable to a certain company is, say, one hundred dollars, and the amount as shown by the "statements of amounts due from 'other lines'" is fifty dollars, then the sum of fifty dollars only, will be remitted to the commercial company, and the officer in charge will debit himself, on his cash-book of "this line" tolls, the sum of fifty dollars as amount "received from 'this line' tolls collected by the telegraph company," and will take credit on his cash-book of "other line" tolls, for the sum of one hundred dollars as "paid to the telegraph company." (See paragraph 29.)

57. At the close of business on Saturday of each week, report will be made of the cash transactions during the week, including the business done for the current Saturday.

The reports will be made in duplicate, one to be retained, the other to be forwarded to the officer in charge; they will be made separately, one for "this line" funds, and another for "other line" funds.

The report for "this line" funds will be made as follows:

THIS LINE RECEIPTS.

War Department, Signal Service, U. S. Army,
United States Military Telegraph Lines,
..... Office, 168...

To the Officer in Charge,
..... Division,

SIR: I have the honor to submit the following statement pertaining to "This line receipts" at this office for the week ending Saturday,, 188...

	Dr.		Cr.	
	This line.		This line.	
Balance from last statement.....	\$.....		\$.....	
Received during the week	
Total receipts	
Remitted herewith by	
Balance due from office.....	

Very respectfully,
Your obedient servant,

....., *Signal Corps, U. S. Army.*

[Indorsement.]

WAR DEPARTMENT,
SIGNAL SERVICE, U. S. ARMY,
U. S. Military Telegraph Lines,
..... Office.

STATEMENT OF FUNDS.

"This line" receipts for the week ending
Saturday,, 188 .

NOTE.—The statement of receipts will only include money actually collected, and the statement will be rendered whether any money is received or not. When the end of a month falls in any week, not on a Saturday, two statements will be rendered, one for that part of the week ending with the month, and another for that part of the week beginning with the first of the succeeding month and ending with the Saturday, proper interlineations to be made in such case.

Rec'd, O. O. I. C....., 188 .

A copy will be retained at the office from which this statement is rendered.

The report for "other line" funds will be made as follows:

OTHER LINE RECEIPTS.

War Department, Signal Service, U. S. Army,
United States Military Telegraph Lines,
..... Office,
....., 188 ..

To the Officer in Charge,
..... Division,

SIR: I have the honor to submit the following statement pertaining to "Other line receipts" at this office for the week ending Saturday,, 188...

	Dr.		Cr.	
	Other lines.	Sundries.	Other lines.	Sundries.
Balance from last statement	\$.....	\$.....	\$.....	\$.....
Received during the week.....
Total receipts.....
Remitted herewith by
Credit due for
Total credits.....
Balance due from office

Very respectfully,
Your obedient servant,

....., Signal Corps, U. S. Army.

[Indorsement.]

WAR DEPARTMENT,
SIGNAL SERVICE, U. S. ARMY,
U. S. Military Telegraph Lines.
.....Office.

STATEMENT OF FUNDS.

"Other line" receipts for the week ending
Saturday,, 188 ..

NOTE.—The statement of receipts will only include money actually collected, and the statement will be rendered whether any money is received or not. When the end of a month falls in any week, not on a Saturday, two statements will be rendered, one for that part of the week ending with the month, and another for that part of the week beginning with the first of the succeeding month and ending with the Saturday, proper interlineations to be made in such case.

Rec'd, O. O. I. C., 188.

A copy will be retained at the office from which this statement is rendered

58. The "Statement of moneys expended for postage or special delivery," required under paragraph 7, will be in the following form, and in duplicate, one copy to be retained, the other to be forwarded to the officer in charge :

(STATEMENT OF MONEYS EXPENDED FOR POSTAGE OR SPECIAL DELIVERY.)

(Station)
 (Date)
 I certify that of the commercial telegrams received at this station in the month of, 188., I have mailed and paid postage on same, or paid special delivery charges on others, as follows :

<i>Postage.</i>				
Date.	To whom addressed.	Received from.	Mailed to.	Amount.
<i>Special deliveries.</i>				
Date.	To whom addressed.	Received from.	How delivered.	Amount.

I do further certify that the amounts required for postage or for special delivery as shown above, were reported as already collected at the telegraph offices noted in the column above "received from," by said offices at the time of transmitting the respective telegrams, and that the amounts were to be taken up on the "other line" accounts-current of said offices, for the month of, 188...

(Signature)
 (Rank)
 I certify that the amounts reported in the above certificate as paid for postage and for special deliveries have been checked with the accounts from the stations named in the column "received from," and found to be correctly reported.

(Signature)
 (Rank)
Officer in charge.

59. The assignment of enlisted men, or the appointment of civilians, as operators in charge of United States military telegraph stations, will only be made after the most careful scrutiny and satisfactory examination of their references as to probity, previous record, employment, and reliability, and that they are vouched for in every respect. Credit for losses of money, when arising through neglect of the precautions embraced in this order, will not receive favorable action of the Chief Signal Officer in the settlement of the accounts of officers in charge.

60. Final settlement must not be made with such employes when discharged, until an opportunity has been afforded for a careful examination of their accounts, and for correction of the amount due from them by reason of subsequent arrearages found in the comparison of check errors.

61. Form 421, 1886, "Statement of public funds," must be rendered weekly, by officers in charge, for "this line" funds only, to the Chief Signal Officer of the Army.

62. The other forms as now required to be rendered for property accountability will be made as heretofore.

63. In addition to the forms specially mentioned in the preceding

paragraphs, the following-named forms will be prepared in accordance with the instructions printed on each:

By officers in charge

Estimate of Telegraph Supplies.
Return of Signal Service Property.
Return of Detachment.
Abstracts of Free Messages.
Descriptive list of Persons and Articles Hired.
Monthly Line Report.
Monthly Report of Expenditures.

By operators in charge.

Estimate of Stationery and Supplies.
Report of Signal Service Property.
Check Report of Free Messages.
Monthly Line Report (by chief operators only).
Labor and Material Report.
Monthly Report of Expenditures (by chief operators only).
Repairman's Trip Report.

64. Attention is invited to the requirements of General Orders No. 53, dated Signal Office, War Department, Washington, December 2, 1886, relating to "O. B. and G. S." messages.

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER:

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT.
Washington, December 24, 1886.

GENERAL ORDERS }
No. 59.

The "Instructions to Observers," &c., are amended as follows:
Paragraph 40 (as amended by General Orders No. 12, series of 1884, and General Orders No. 1, series of 1885) is amended to read—
40. The observer at each station will note each day, at the exact time of sunset, and for a period not to exceed thirty minutes thereafter, *the actual aspect of the western sky and of the sunset.* Nothing else will be considered in making this observation.

Sunsets will be divided into four classes: clear, yellow, green, and cloudy.

Clear will include all sunsets in which the western sky is free from clouds, or is of a reddish hue, or presents a combination of bright colors.

Yellow will include all in which the *predominant* color in the western sky is yellow.

Green will be used to designate those in which portions of the western sky markedly exhibit that color. Green is rarely the predominant color. The observer will exercise great care in the observation of both yellow and green sunsets.

Cloudy will include those in which the sun sets behind a bank of stratus or nimbus clouds, or when it is obscured to such an extent as to exhibit none of the characteristics of the clear, yellow, or green sunsets.

40 *a.* Sunset observations will not in any sense be made with a view of making predictions of the weather. They will not be recorded as verified or not verified on any forms, or in the Daily Journal.

40 *b.* The character of the sunset will be recorded on Form 101, Form 113, in the Daily Journal, and in the Monthly Abstract of Journal.

40 *c.* Clear, yellow, green, or cloudy will be recorded on Form 101, in the blank space headed "Character of prediction" (the words "of prediction" being cancelled by a red-ink line). The blank space headed "Ver. or not verified" will be left blank. The name of the observer will be given in the space provided for that purpose.

40 *d.* These observations will be recorded on Form 113 (Monthly Meteorological Report), as follows:

On page 8 of the form, in the column headed "Character of prediction" (the words "of prediction" being cancelled), record clear, yellow, green, or cloudy, as the case may be, for each day. The column headed "Verified or not verified, Yes or no" will be left blank.

In the summary on page 10, cancel all that now refers to sunset observations, and in the blank spaces above the cancelled matter enter the following data:

Number of clear sunsets
Number of yellow sunsets.. ..
Number of green sunsets.... ..
Number of cloudy sunsets.. ..

Total.....

Number of clear sunsets (including also yellow and green) followed during the succeeding twenty-four hours by .01 inch, or more, of precipitation,

Number of clear sunsets (including also yellow and green) not followed during the succeeding twenty-four hours by .01 inch, or more, of precipitation,

Number of cloudy sunsets followed during the succeeding twenty-four hours by .01 inch, or more, of precipitation,

Number of cloudy sunsets not followed during the succeeding twenty-four hours by .01 inch, or more, of precipitation,

[NOTE.—Percentages will not be given.]

40e. The actual aspect of the western sky at the time of sunset will be indicated in the regular 10 p. m. (75th meridian time) telegraphic report from each station, in the following manner:

If the sunset preceding the 10 p. m. telegraphic report was *clear*, *yellow*, or *green*, no cipher word will be given after the word for exposed thermometer on Form 203 to indicate the character of the sunset.

If the sunset was *cloudy*, the word "*cloudy*" will be written in the space on Form 203, immediately following the cipher-word for exposed thermometer.

40f. The character of the sunset will be the last entry for each day in the Daily Journal and the Monthly Abstract of Journal. If clear, yellow, or cloudy, the words clear sunset, yellow sunset, or cloudy sunset will be given. If *green* the observer will give a brief description of the general appearance of the western sky, stating what other colors were seen, what proportion was green, and the length of time this color was perceptible.

The summary will be made up as follows:

SUMMARY OF SUNSETS.

Character.	Number.
Clear.....
Yellow.....
Green.....
Cloudy.....
Total.....

Paragraph 41 (as amended by General Orders No. 12, series of 1884) and so much of the text on pages 74, 75, 76, 77, 78, 89, 90, 92, 93, 94, 95, 96, 97, and 98, as relates to sunset predictions and verifications, the manner of telegraphing sunsets, and recording sunset observations in the Daily Journal, are annulled.

This order will go into effect on July 1, 1887.

[5121 and 10637, Sig., 1886.]

Clause 2 of Paragraph 178, page 109, "Instructions to Observers," &c., is amended to read as follows:

2. In the absence of relatives, the necessary arrangements will be made for burial, the expenses of which (including burial site and opening of the grave) must be limited to fifteen dollars for a non-commissioned officer, and ten dollars for a private. If relatives or other friends are present and insist upon a more expensive funeral, they and the undertaker will be informed that no expense incurred in excess of the above amount will be settled by the Government. All funeral expenses should be included in an itemized bill of the undertaker, which will be forwarded to this office with a letter of transmittal. [G. O. 105; Cir. 12, A. G. O., 1885.]

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER :

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT,
GENERAL ORDERS }
No. 60. } *Washington, December 30, 1886.*

The 11 p. m. observation will be discontinued at all stations of this service after December 31, 1886. Beginning January 1, 1887, the 10 p. m. observation will replace it in every particular. Observers will act accordingly. The anemometer sheet will be changed at noon, 75th meridian time. [11182, Sig., 1886.]

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER :

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT,

GENERAL ORDERS }
No. 61.

Washington, December 31, 1886.

The following promotions in the Signal Corps, U. S. Army, are announced, from the dates set opposite the respective names:

Corporal *August Schneider*, to be Sergeant, December 1, 1886 (6 years and 3 months' service on station).

Corporal *Henry F. Knabe*, to be Sergeant, December 1, 1886 (6 years and 1 month's service on station).

Corporal *Edward E. Perry*, to be Sergeant, December 13, 1886, (6 years and 1 month's service on station).

1st Class Private *Robert M. Crawford*, to be Corporal, December 1, 1886 (6 years' service on station).

1st Class Private *Frederick J. Randolph*, to be Corporal, December 1, 1886 (8 years' service). [10763, Sig., 1886.]

1st Class Private *Daniel J. Carroll*, to be Corporal, December 13, 1886 (7 years and 10 months' service; on station, 1 year and 3 months). [10764, Sig., 1886.]

2d Class Private *George W. Scott*, to be 1st Class Private, December 23, 1886.

2d Class Private *Charles F. Dickens*, to be 1st Class Private, December 28, 1886.

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER :

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,

WAR DEPARTMENT.

GENERAL ORDERS }
No. 62.

Washington, December 31, 1886.

The Acting Chief Signal Officer announces to the Corps the deaths of the following-named enlisted men during the year 1886:

Sergeant *Isaac A. Reed*;

Killed at Indianola, Texas, August 20, 1886:

Sergeant *Frederick Belford*;

Died at Fort Bliss, Texas, October 31, 1886, from injuries received from some person or persons unknown on September 8, 1886.

Sergeant *William W. Eichelberger*;

Died at Portland, Maine, December 12, 1886, from natural causes. The deceased continued on duty to the last.

1st Class Private *Ernest S. Comings*;

Died at Cincinnati, Ohio, September 28, 1886, from typhoid fever contracted at that place.

1st Class Private *William M. Miller*;

Died at Fort Robinson, Nebraska, August 31, 1886, from a gun-shot wound accidentally inflicted.

These men were all intelligent, efficient, and faithful members of the Corps. Special mention is made of Sergeant *Isaac A. Reed* who lost his life in the discharge of duty during a terrible cyclone.

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER:

J. MITCHELL.

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

CIRCULAR }
No. 1. }

Signal Office,
WAR DEPARTMENT.
Washington, February 1, 1886.

The tables herewith show for January, 1886 :

1. Changes in classes and work of stations.
2. Changes in stations and duties of officers.
3. Changes in stations and duties of enlisted men.
4. Orders revoked, changing stations and duties of enlisted men.
5. Promotions and casualties.

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

1. List of changes in classes and work of stations.

Station.	Class.		Instruction.		Remarks.
	From—	To—	No.	Date.	
Dardenelle, Ark.....		Special river	2	Jan. 11	Established.
La Crosse, Wis.....		Special printing.....	4	30	Displays cold-wave signals.
Logansport, Ind.....			1	7	Established (to date January 5).
Logansport, Ind.....			1	7	Displays cold-wave signals.
Oswego, N. Y.....			2	11	Displays cold-wave signals.
Sanford, Fla.....			6	27	Displays cold-wave signals.

2. List of changes in stations and duties of officers.

Name.	Rank.	From—	To—	Order—		Remarks.
				No.	Date.	
John C. Walehe.....	2d Lieutenant..	Fort Myer, Va	Washington City.....	16	Jan. 20	For duty.

3. List of changes in stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Beck, William C.	Pvt.	Fort Myer, Va.	Philadelphia, Pa.	9	Jan. 23	Assistant on station.
Bolton, Patrick	Pvt.	Fort Myer, Va.	Cape Henlopen, Del.	9	9	In charge of station.
Brinard, David L.	Sgt.	Washington City	New York City	3	9	For special duty; afterwards to return to Washington City.
Brewer, Madison M.	Pvt.	Fort Myer, Va.	Indianapolis, Ind.	9	23	Assistant on station.
Burke, Frank	Sgt.	Fort Myer, Va.	Columbus, Ohio	6	18	Assistant on station.
Burrows, William	Pvt.	Fort Myer, Va.	San Carlos Agency, Ariz.	9	23	In charge of station.
Butler, Clayton E.	Pvt.	Lewiston, Idaho	Tatoosh Island, Wash T.	4	14	In charge of station.
Coburn, Frederick S.	Pvt.	New River Inlet, N. C.	Wilmington, N. C.	1	4	Assistant on station.
Coleman, Daniel F.	Pvt.	Fort Myer, Va.	Pittsburg, Pa.	1	4	Assistant on station.
Connell, Maurice	Pvt.	Pittsburg, Pa.	Los Angeles, Cal.	9	23	Awaiting orders, pending discharge.
Crossman, John D.	Pvt.	San Francisco, Cal.	Cairo, Ill.	8	22	Assistant on station.
Dax, Ewing W.	Pvt.	Fort Myer, Va.	Washington City	9	23	For clerical duty.
Earnest, J. Paul	Pvt.	Pittsburg, Pa.	Vicksburg, Miss.	10	27	Assistant on station.
Fitzgerald, James J.	Sgt.	Fort Myer, Va.	Fort Wayne, Mich.	6	18	For discharge and re-enlistment; afterwards to return to Alpena.
Fraser, Allan E.	Pvt.	Alpena, Mich.	Toledo, Ohio	9	23	Assistant on station.
Fuller, William D.	Pvt.	Fort Myer, Va.	Denver, Colo.	9	23	Assistant on station.
Fullerton, Edward G.	Pvt.	Fort Benton, Mont.	Grand Haven, Mich.	9	23	Awaiting orders, pending discharge.
Gardiner, I. Gwyn	Pvt.	Fort Myer, Va.	Pittsburg, Pa.	9	23	Assistant on station.
Grunow, Dexter C.	Pvt.	Fort Myer, Va.	Charleston, S. C.	9	23	Assistant on station.
Hanner, Edward A.	Pvt.	Fort Myer, Va.	Philadelphia, Pa.	9	23	Temporary assistant on station.
Hardinge, Robert M.	Pvt.	Fort Myer, Va.	Cleveland, Ohio	9	23	Assistant on station.
Harrod, Frank L.	Pvt.	Fort Myer, Va.	Little Rock, Ark.	9	23	Assistant on station.
Hobbs, Everett C.	Pvt.	Fort Myer, Va.	Portland, Me.	9	23	In charge of station.
Jones, Edward P.	Pvt.	Little Rock, Ark.	Portland, Me.	9	23	Assistant on station.
Kinney, Burton A.	Pvt.	Washington City	Pittsburg, Pa.	10	27	For intemperance.
Knoop, George W.	Pvt.	Vicksburg, Miss.	Fort Myer, Va.	9	23	Awaiting orders, pending discharge.
Lacey, James J.	Pvt.	Philadelphia, Pa.	Nantucket, Mass.	9	23	To open station.
Lewis, Robert E.	Pvt.	Portland, Me.		9	23	
Liebmann, Gustav	Sgt.			9	23	

3. List of changes in stations and duties of enlisted men.—Continued.

Name.	Rank.	Order.		Remarks.
		From—	To—	
				No. Date.
Lord, Robert C.	Sgt.	Wilcox, Ariz.	Fort Thomas, Ariz.	4 Jan. 14
Mermet, Edward	Pvt.	Charleston, S. C.	Detroit, Mich.	9 23
McCaun, John M.	Pvt.	Toledo, Ohio.	Columbus, Ohio.	2 8
McGinnis, David B.	Pvt.	Northfield, Minn.	Saint Paul, Minn.	8 22
Morey, William Jr.	Pvt.	Fort Myer, Va.	Washington City.	9 23
Quincy, Edward B.	Pvt.	Fort Myer, Va.	Louisville, Ky.	9 23
Pasandague, Louis F.	Pvt.	Sandy Hook, N. J.	New York City.	9 23
Paxton, Ruthford H.	Cpl.	Barneget City, N. J.	Washington City.	6 18
Perry, Edward E.	Pvt.	Wilmington, N. C.	New River Inlet, N. C.	1 4
Richardson, William F.	Pvt.	New York City.	Eastport, Me.	9 23
Ridgway, Frank	Pvt.	Cape Henlopen, Del.	Sandy Hook, N. J.	9 23
Robinson, Walter F.	Pvt.	Fort Myer, Va.	Boston, Mass.	9 23
Sebastian, Robert L.	Pvt.	Tancred Island, Wash. T.	Red Bluff, Cal.	4 14
Sime, Alfred F.	Pvt.	Fort Thomas, Ariz.	Leavenworth, Kans.	4 14
Slaughter, J. Penberton.	Pvt.	Augusta, Ga.	Fort Stockton, Tex.	2 2
Turton, John B.	Cpl.	San Carlos Agency, Ariz.	Fort Benton, Mont.	9 23
Wadz, Ferdinand J.	Pvt.	Fort Myer, Va.	Fort Huron, Mich.	9 23
Whitfield, Augustus F.	Pvt.	Fort Myer, Va.	Pensacola, Fla.	9 23
Williams, Frank T.	Pvt.	Columbus, Ohio.	Augusta, Ga.	2 8
Williams, John R.	Sgt.	Red Bluff, Cal.	Wilcox, Ariz.	4 14

4. List of orders revoked, changing stations and duties of enlisted men.

Name.	Rank	From—	To—	Order. No. Date.	Remarks.
Burke, Frank	Sgt.	Columbus, Ohio.....	Fort Stockton, Tex....	114 Dec. 19, 1885.....	Revoked by par. III., S. O. No. 2, Jan. 8.

5. List of promotions and casualties.

Name.	Rank.	Order. No. Date.	Remarks.
Beck, William C.....	1st Cl. Pvt.	3 Jan. 21	Promoted from 2d Class Private.
Berryman, Silas.....	1st Cl. Pvt.	3 Jan. 28	Discharged; expiration of term of service. Character given, "excellent." Re-en- listed Jan. 29.
Brewer, Madison M.....	1st Cl. Pvt.	3 21	Promoted from 2d Class Private.
Crawford, Robert M.....	1st Cl. Pvt.	7 7	Discharged; expiration of term of service. Character given, "excellent." Re-en- listed Jan. 8.
Cutshall, George W.....	2d Cl. Pvt.	4 4	Discharged by order. Character given, "excellent."
Davis, Jerome F.....	2d Cl. Pvt.	13 13	Discharged by order. Character given, "excellent."
Earnest, J. Paul.....	1st Cl. Pvt.	21 21	Promoted from 2d Class Private.
Fraser, Allan E.....	1st Cl. Pvt.	3 21	Promoted from 2d Class Private.
Fuller, William D.....	1st Cl. Pvt.	3 21	Promoted from 2d Class Private.
Gardner, I. Gwynn.....	1st Cl. Pvt.	3 21	Promoted from 2d Class Private.
Gradow, Dexter C.....	1st Cl. Pvt.	3 21	Promoted from 2d Class Private.
Hardinge, Robert M.....	1st Cl. Pvt.	3 21	Promoted from 2d Class Private.
Harrod, Frank L.....	1st Cl. Pvt.	3 21	Promoted from 2d Class Private.
Hobbs, Everett C.....	1st Cl. Pvt.	3 21	Promoted from 2d Class Private.
Hyatt, Robert J.....	Lance Sgt.	3 21	Discharged; expiration of term of service. Character given, "excellent." Re-en- listed Jan. 8.
Koonce, George W.....	1st Cl. Pvt.	7 7	

5. *List of promotions and casualties—Continued.*

Name.	Rank.	Order.		Remarks.
		No.	Date.	
Lindsey, Lucian	1st Cl. Pvt.	16	Jan. 15	Discharged by order. Character given, "very good."
McCann, John M.	1st Cl. Pvt.	21	16	Discharged by order. Character given, "very good."
Miller, William M.	1st Cl. Pvt.	3	21	Promoted from 2d Class Private.
Peters, Rudolph	Sergeant	25	25	Discharged: expiration of term of service. Character given, "excellent." Re-en-
				listed Jan. 26.
Robinson, Walter F.	1st Cl. Pvt.	3	21	Promoted from 2d Class Private.
Walz, Ferdinand J.	1st Cl. Pvt.	3	21	Promoted from 2d Class Private.
Wappenhaus, C. F. R.	Sergeant	5	5	Discharged: expiration of term of service. Character given, "excellent." Re-en-
				listed Jan. 9.
Whitfield, Augustus F.	1st Cl. Pvt.	3	21	Promoted from 2d Class Private.

CIRCULAR }
No. 2. }

Signal Office,

WAR DEPARTMENT,

Washington, February 23, 1886.

The table herewith, showing the relative accuracy attained in the meteorological work, and the percentages of verifications of sunset predictions, by observers at the stations of the Signal Service, U. S. Army, is published for the information of all concerned.

The result of the examination of the meteorological work of each man during the periods covered, as published herein, has been noted on his official record at this office, for future reference in determining his standing as a competent observer.

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Statement showing the number of errors found in station work examined at this office for the six months ending December 31, 1885, and the percentages of verifications of sunset predictions made by the various observers during the same period.

The figures in brackets indicate the maximum number of months covered by the work.

Name.	Rank.	Forms 101 and 113 a.	Other station work.	Percentage of sunset verifications.	Forms 127b for 1885.	Station.
Albrecht, L. H.	[6] Sgt.	28	1	83.2	2	Fort Davis.
Alderson, A. K.	Pvt.		1			Boston.
Allen, J. C.	Pvt.		1			Augusta.
Applegate, Samuel.	[6] Sgt.	32	0			Unalaksha.
Bailey, Wayland.	[1] Pvt.	10	4	86.7		Jacksonville.
Bailey, W. O.	[4] Sgt.	67	7	80.8	13	Knoxville.
Baldwin, H. McP.	[1] Pvt.	17	0	93.5		Capo May.
Barber, J. T.	Pvt.		1			Detroit.
Barnes, J. O.	[6] Sgt.	15	1			Yuma.
Barry, J. A.	Pvt.		4	80.6	0	Albany.
Barwick, J. A.	[6] Sgt.	12	2	96.8	2	Baltimore.
Bauer, J. W.	Pvt.		5			Sacramento.
Beall, S. W.	[6] Sgt.	18	2	86.8	1	Mt. Washington.
Beals, E. A.	[2] Sgt.	5	0	83.8		Atlanta.
Belford, Frederick.	[1] Sgt.	2	1	100.0		Mt. Washington.
Bell, William.	[6] Sgt.	4	1	91.8	3	Block Island.
Bennett, M. C.	Pvt.	1	0	91.8	2	Chattanooga.
Birckhead, C. H.	[6] Sgt.	60	1	93.4	12	El Paso.
Blandford, H. S.	[4] Sgt.	63	1			Port Angeles.
Blundon, B. A.	[1] Sgt.	7	0	94.3		Norfolk.
Bolton, Patrick.	[6] Sgt.	14	3	80.6		Buffalo.
Bolton, William.	[2] Sgt.	23	3	91.0	30	Dayton.
Boyer, H. B.	[6] Pvt.	6	2	80.2		Walla Walla.
Boynton, H. R.	[6] Pvt.	187	0			Atlantic City.
Bozzell, C. L.	[6] Pvt.	13	8			Pittsburg.
Brace, E. R.	[6] Sgt.	03	10	85.3		Cape May.
Brandenburg, E. C.	Pvt.		2			New Orleans.
Brandenburg, F. H.	[6] Sgt.	27	4	76.6	4	Key West.
Browne, A. W.	[6] Cpl.	34	0	59.0	16	Fort Bridger.
Buell, Allen.	[1] Sgt.	1	0	88.1	19	Cairo.
Burke, Frank.	[6] Sgt.	66	4	85.3	18	Duluth.
Burnley, C. D.	[4] Cpl.	61	7			Cincinnati.
Butler, C. E.	[6] Pvt.	25	0	88.6	11	West Las Animas.
Byram, J. W.	[6] Sgt.	15	2	81.0	11	Dubuque.
Cahill, P. J.	[6] Sgt.	12	3	77.4		Toledo.
Call, L. W.	[6] Pvt.	5	2	80.3	6	Chicago.
Carden, G. A.	[4] Pvt.	14	7	90.2		Columbus.
Carr, D. J.	[4] Sgt.	34	1	96.7	2	Valentine.
Chaffee, F. P.	[6] Sgt.	4	2	97.3	14	Lewiston.
				79.4	31	Vicksburg.
				90.7	1	Concordia.
				83.0	5	Lamar.
				92.0		Poplar River.
						Chicago.
				88.6	12	Mt. Washington.
				87.5	18	Smithville.

Statement showing the number of errors, &c.—Continued.

Name.	Rank.	Form 101 and 113 c.	Other station work.	Percentage of sunset verifications.	Form 1276 for 1885.	Station.
Chappel, G. M	[6] Pvt	9	2	87.6	11	Mackinaw City.
Chappel, V. P	[2] Pvt. }	79	1	95.2	81	Saint Louis.
Chase, E. D	Pvt		9			Poplar River.
Clarke, F. H	[2] Sgt	9	0			Galveston.
Chernick, George	[3] Civ	29	0			Fort St. Michael's.
Cline, I. M	[1] Pvt. }	0	1	93.6		Behring Island.
	[4] Pvt. }	9	2	96.7	0	Fort Concho.
Cody, J. A	[2] Sgt	28	2	87.8		Abilene.
Cole, O. B	[6] Sgt	49	8	86.6	22	Knoxville.
Coleman, D. F	Pvt		1			Boston.
Collins, T. S	[6] Sgt	26	2	85.9	3	Fort Bidwell.
Cougar, N. B	[6] Sgt	22	4	93.4	1	Montrose.
Connor, Patrick	[6] Sgt	2	0	94.0	3	Detroit.
Conrad, F. W	[6] Sgt	21	6	83.2	9	Fort Grant.
Considine, Thomas	Pvt		1			Des Moines.
Cox, H. J	Pvt		2			Mobile.
Craig, John	[6] Sgt	2	4	82.2	2	Boston.
Crane, A. B	[5] Pvt	29	8	88.2	20	Springfield.
Crawford, James	Pvt		6			Chincoteague.
Cunningham, C. K	[6] Pvt	43	1	98.9	17	New Orleans.
Curley, H. H	Pvt		8			Fort Shaw.
Cuthbertson, David	[6] Sgt	7	3	88.4	2	Boston.
Dailey, W. J	[6] Cpl	103	4	83.2		Buffalo.
Daly, William	[6] Pvt	21	3	96.3	8	Fort Custer.
Dascomb, John	[1] Pvt. }	28	1	87.1		Fort Macon.
			2			Olympia.
David, W. W	Pvt		1			Portland, Oreg.
Davis, A. J	Pvt		6			Savannah.
Davis, G. H	[2] Pvt	34	12	85.2		Cleveland.
Davis, J. H	[6] Pvt	47	2	90.7	48	North Platte.
Davis, William	[6] Sgt	11	4	86.3	9	Fort Sill.
Day, E. W	Pvt		6			Cape Henry.
Delano, W. S	[6] Pvt	19	3	86.3	17	Pittsburg.
Demain, E. R	[1] Sgt	3	0	83.9		Shreveport.
	[4] Sgt	7	0	97.6		Prescott.
Dent, W. W	Pvt		2			Yuma.
			1			Erie.
Dey, L. M	[6] Sgt	41	2	76.6	5	Moorhead.
Dill, Charles	[4] Sgt	41	2	79.8		Philadelphia.
Dorinan, Louis	[2] Pvt	30	1	91.9		Leavenworth.
Dosher, S. L	[1] Pvt	13	4	90.3		San Antonio.
Dunne, Lawrence	[6] Sgt	41	0	84.2	13	Hatteras.
					18	Cincinnati.
Edmondson, W. M	[6] Sgt	52	2			Montgomery.
Elchelberger, W. W	[6] Sgt	29	12	87.6	39	Cincinnati.
Emery, E. H	Pvt		1	84.8	8	Port Huron.
Emery, S. C	[6] Sgt	20	4	86.3	6	New York City.
England, W. W	Pvt		6			Key West.
Evans, E. A	Pvt		4			Savannah.
Fallon, W. H	[6] Cpl	8	4	78.7	10	Louisville.
Farnell, D. N	[3] L. Sgt	116	3	93.6	62	Buffalo.
Felger, G. W	[6] Sgt	9	6	79.9	0	Saint Vincent.
						Rio Grande City.
						Baltimore.

Statement showing the number of errors, &c.—Continued.

Name.	Rank.	Forms 101 and 113 a.	Other station work.	Percentage of sunset verifications.	Forms 127b for 1885.	Station.
Fisher, David	[6] Cpl	26	5	82.6	7	Augusta.
Fitzgerald, J. J	[6] Sgt	84	8	88.0	16	Alpena.
Fitzgerald, John	[4] Cpl	46	4	92.7	29	Detroit.
Fitzmaurice, P. H.	[6] Pvt	5	3	90.2	2	North Platte.
Flannery, D. T.	[6] Sgt	10	9	82.0	10	Kitty Hawk.
Ford, H. W.	[6] Pvt	1	3			Memphis.
Franklin, G. E.	[6] Sgt	14	2	95.6	4	Cairo.
French, E. W.	[6] Pvt		3			Saint Louis.
Fullerton, E. G.	[4] Pvt	20	2	87.8	17	Los Angeles.
Garriott, E. B.	[6] Sgt	31	4	89.7	24	Nashville.
Gibson, Thomas	[6] Cpl	138	12	93.4	7	Holena.
Gilligan, J. J.	[6] Sgt	58	7	93.4	30	Fort Benton.
Glass, E. J.	[6] Pvt	48	1	88.3	11	Louisville.
Glenn, S. W.	[6] Sgt	12	2	83.2	8	San Luis Obispo.
Gorgas, C. S.	[6] Pvt	13	3	87.1		Denver.
Goroni, Nelson	[6] Sgt	12	3	90.2	0	Fort Totten.
Gosowisch, F. Z.	[6] Sgt	22	5	85.1	7	Huron.
Goulding, B. L.	[4] Sgt	10	6	81.9		Cape Henry.
Graham, C. C.	[6] Pvt		11			San Francisco.
Grant, R. Q.	[1] Pvt	8	3	90.3		Keokuk.
	[1] Pvt	2	0	96.7	0	Chattanooga.
Greene, W. H.	[5] Pvt	231	29	73.3	17	Milwaukee.
Grover, John	[5] Sgt	12	5	94.8		Hatteras.
Hall, Harry	[6] Sgt	35	0	75.8	10	Fort Stanton.
Hauey, S. A.	[4] Cpl	101	4	83.6		Pensacola.
Harriett, T. B.	[5] Sgt	1	0	76.5	0	Rochester.
Hase-Hagen, George ..	[6] Pvt	26	1	90.2	10	Kaeler.
Healy, John	[4] Sgt	13	0	83.7		Pike's Peak.
Hearne, M. L.	[6] Sgt	33	2	93.6	13	Wilmington.
Helskell, H. L.	[1] Sgt	1	0	74.2	24	Washington City.
Hemenway, J. F.	[1] Pvt	9	1	80.6		Fort Smith.
Herman, Meyer	[6] Sgt	36	3	74.9		Lynchburg.
Hersey, H. B.	[6] Pvt	34	2	91.3	24	Portland, Oreg.
Hill, J. E.	[1] Pvt	18	0	80.6		Washington City.
Hines, I. B.	[4] Pvt	44	7	92.7	18	Fort Canby.
Hinman, R. E.	[6] Pvt	13	4	84.3	11	Spokane Falls.
Hough, B. F.	[6] Sgt	13	14			New Orleans.
Hunt, G. E.	[6] Pvt	84	27	71.8	5	Deadwood.
Hutchinson, P. M.	[3] Sgt	2	0	78.0		Shreveport.
Jenkins, P. T.	[1] Sgt	1	0	71.0		Block Island.
Jennings, T. B.	[1] Sgt	7	0	77.8		New York City.
Jeanofsky, L. N.	[6] Sgt	59	1	92.4	4	Sandusky.
Jones, E. P.	[2] Pvt	5	4	86.8	8	Albany.
Jones, H. U.	[1] Sgt	9	0	77.4		Marquette.
Karns, J. D.	[6] Pvt	22	9	91.5	23	Montgomery.
Konan, T. J.	[4] Sgt	36	2	91.0		Chicago.
Konealy, James	[6] Sgt	1	0	91.8	6	Toledo.
Kimball, H. H.	[6] Pvt		4			Nashville.
						Little Rock.
						Lamar.
						Fort Canby.
						Santa Fé.
						Boisé City.
						Grand Haven.

Statement showing the number of errors, &c.—Continued.

Name.	Rank.	Forms 101 and 113 a.	Other station work.	Percentage of sunset verifications.	Forms 127b for 1885.	Station.
Kinney, B. A	[1] Pvt	11	2	71.0	15	Portland, Me.
Kitchel, C. N	[6] Sgt	34	10	84.3	10	Moorhead.
Knabe, H. F	[2] Pvt	16	0	88.4	0	Prescott.
Knowles, E. C	[1] Pvt	17	2	89.9	.....	Black Island.
Krueger, A. C	Pvt .....	.....	11	.....	.....	Baltimore.
Kuntz, T. A	Pvt .....	.....	4	.....	.....	Atlantic City.
Lackey, J. J	Pvt .....	.....	2	.....	.....	Norfolk.
Lanouette, J. E	[6] Sgt	9	0	90.2	.....	Vicksburg.
Leavitt, A. P	[5] Sgt	11	1	90.8	19	Dodge City.
Leitzell, S. M	[4] Pvt .....	.....	2	.....	.....	Cape Mondocino.
Lenoir, B. O	[2] Sgt	3	0	74.8	.....	Memphis.
.....	[3] Sgt	1	0	92.0	.....	Little Rock.
Lewis, R. E	Pvt .....	.....	1	85.8	3	Fort Benton.
Liebmman, Gustav	[6] Sgt	42	3	.....	.....	Helena.
Lindsey, Lucian	Pvt	1	1	81.1	.....	Philadelphia.
Line, William	[6] Sgt	22	2	.....	.....	Portland, Me.
Ling, C. W	Pvt .....	.....	6	80.4	8	Detroit.
Linsley, J. G	[6] Sgt	84	4	.....	.....	Cleveland.
Loveland, G. A	Pvt .....	.....	1	74.5	23	Chicago.
Lynch, J. G	[6] Sgt	57	7	.....	.....	Owego.
Lyons, P. F	[6] Sgt	30	4	91.9	.....	New York City.
MacInerney, E. O'C	[6] Sgt	62	2	91.9	8	New London.
Maphet, Edward	Pvt .....	.....	3	83.8	8	Saint Paul.
Marbury, J. B	[3] Sgt	22	1	90.2	14	Galveston.
Martin, R. R	[6] Sgt	32	0	.....	.....	Charleston.
Mathews, A. L	[3] Pvt	33	2	.....	.....	Boston.
Maxwell, W. D	[6] Pvt	147	3	.....	.....	Salt Lake City.
Mayers, W. S	[6] Pvt	6	1	95.6	26	Davenport.
McCann, John	Pvt .....	.....	14	85.4	1	Helena.
McCann, J. M	Pvt .....	.....	2	.....	.....	Fort Stockton.
McGann, E. W	[6] Sgt	43	11	81.4	.....	Fort Apache.
McGlone, John	[6] Sgt	28	7	.....	.....	Barnegat City.
McGovern, Edgar	[6] Sgt	35	0	87.0	2	Philadelphia.
McLean, J. J	[6] Sgt	23	2	.....	.....	Toledo.
McRae, A. L	Sgt .....	.....	.....	79.9	29	Rochester.
Melton, J. H	[3] Sgt	3	0	86.4	2	Brownsville.
Millar, F. B	Pvt .....	.....	10	.....	.....	Cheyenne.
Miller, W. S	Pvt .....	.....	7	86.2	5	Olympia.
Mitchell, A. J	Pvt .....	.....	1	91.3	17	Stika.
Moffette, Edward	Cpl .....	.....	2	.....	.....	Columbus.
Moore, Denis	[1] Sgt	6	0	75.1	.....	Sanford.
Mueller, J. E	[6] Sgt	19	6	85.3	.....	Montgomery.
Murphy, D. C	[6] Sgt	56	5	.....	.....	Chicago.
Nanry, J. J	[6] Sgt	88	5	.....	.....	Cleveland.
Nichols, H. A	Pvt .....	.....	4	.....	.....	Dodge City.
Notson, D. B	[6] Sgt	87	10	87.8	12	Smithville.
.....	.....	.....	1	.....	.....	Philadelphia.
.....	.....	.....	1	.....	.....	Dayton.
.....	.....	.....	1	83.3	.....	Grand Haven.
.....	.....	.....	1	79.9	32	Eastport.
.....	.....	.....	1	89.1	9	Roseburg.
.....	.....	.....	1	87.8	12	Memphis.
.....	.....	.....	1	.....	.....	Mackinaw City.
.....	.....	.....	1	.....	.....	Cheyenne.

Statement showing the number of errors, &c.—Continued.

Name.	Rank.	Forms 101 and 113 a.	Other station work.	Percentage of sunset verifications.	Forms 127b for 1883.	Station.
O'Donoghue, Denis.....	[6] Sgt.....	03	7	87.0	6	Charlotte.
Pague, B. S.....	[1] Pvt.....	6	0	93.5	.....	Cape Mendocino.
Parker, Orib.....	[6] Sgt.....	28	0	86.4	13	Greencastle.
Pasqualiguo, L. F.....	[6] Pvt.....	50	4	89.2	16	Sandy Hook.
Patterson, T. J.....	[4] Pvt.....	51	0	93.9	9	Fort Bidwell.
Paxton, R. H.....	[6] Cpl.....	25	8	83.8	28	Barnegat City.
Pennywitt, Henry.....	[3] Pvt.....	17	1	92.3	1	Norfolk.
Perry, M. H.....	[6] Sgt.....	38	11	94.8	7	Sanford.
Phalobann, E. M.....	[6] Pvt.....	26	0	95.4	2	Palosino.
Phillips, W. F. R.....	[6] Pvt.....	.....	1	.....	.....	Frisco.
Piercy, J. C.....	[6] Pvt.....	.....	4	.....	.....	Kitty Hawk.
Plindell, L. M.....	[6] Sgt.....	6	1	94.6	5	Sandusky.
Pollak, Alexander.....	[6] Sgt.....	22	2	84.8	4	Escanaba.
Pritchard, Appleton.....	[6] Sgt.....	50	1	81.0	10	Omaha.
Pullum, R. H.....	[6] Pvt.....	.....	1	.....	.....	Mobile.
Ray, W. H.....	[6] Sgt.....	4	7	78.8	0	Oswego.
Reed, C. A.....	[6] Pvt.....	42	0	86.4	2	La Crosse.
Reed, I. A.....	[6] Sgt.....	33	11	85.9	12	Winnemucca.
Rhode, S. W.....	[6] Sgt.....	4	1	83.8	4	Indianola.
Richey, S. R.....	[5] Pvt.....	10	0	82.3	1	Milwaukee.
Rickli, J. C.....	[1] Pvt.....	0	0	77.4	0	Fort Bennett.
Ridgway, Frank.....	[1] Pvt.....	37	3	.....	.....	Fort Sully.
Rush, S. R.....	[1] Pvt.....	.....	1	100.0	.....	Fort Elliott.
Ryker, J. N.....	[1] Pvt.....	.....	1	.....	.....	Cape May.
Salisbury, G. N.....	[1] Pvt.....	2	1	.....	.....	Albany.
Schley, T. F.....	[2] Cpl.....	55	2	.....	.....	Omaha.
Schneider, August.....	[6] Cpl.....	18	5	90.2	30	Indianapolis.
Schultz, L. G.....	[3] Pvt.....	16	1	81.2	10	Saint Paul.
Sebastian, R. L.....	[6] Pvt.....	28	0	95.7	.....	Moorhead.
Shearer, C. G.....	[1] Pvt.....	11	7	86.9	12	Baltimore.
Sherman, J. H.....	[6] Sgt.....	33	0	83.9	.....	Lynchburg.
Sherry, J. P.....	[6] Sgt.....	3	2	84.7	9	Fort Buford.
Sherwood, A. T.....	[6] L. Sgt.....	18	6	90.2	10	Rio Grande City.
Sherwood, T. W.....	[6] Pvt.....	.....	8	77.7	2	Tatoosh Island.
Sims, A. F.....	[4] Pvt.....	29	0	.....	.....	Chincooteague.
Slaughter, J. P.....	[4] Pvt.....	.....	2	93.4	.....	New Haven.
Smith, J. H.....	[6] Sgt.....	46	20	.....	.....	Norfolk.
Smith, J. W.....	[6] Sgt.....	31	7	.....	.....	Bismarck.
Smith, R. H.....	[2] Pvt.....	140	0	.....	.....	Milwaukee.
Sprigg, J. C., Jr.....	[4] Sgt.....	33	11	90.2	.....	Fort Thomas.
Stewart, Charles.....	[6] Pvt.....	.....	1	.....	.....	Boston.
Stewart, O. D.....	[6] Sgt.....	27	1	83.7	7	Augusta.
Strong, C. M.....	[6] Pvt.....	.....	4	.....	.....	Fort Stockton.
Stuller, C. H.....	[2] Pvt.....	20	0	96.8	38	Charleston.
Tarr, L. M.....	[6] Pvt.....	.....	3	.....	.....	Jacksonville.
Thomas, W. W.....	[6] Sgt.....	30	1	90.8	5	Fort Bidwell.
						San Diego.
						San Francisco.
						Pittsburg.
						Buffalo.
						Dodge City.
						Fort Elliott.
						Mobile.
						Cedar Keys.

Statement showing the number of errors, &c.—Continued.

Name.	Rank.	Forms 101 and 113 a.	Other station work.	Percentage of sunset verifications.	Forms 127b for 1885.	Station.
Thompson, E. C.....	[3] Pvt.....	72	2	95.7	.....	Salt Lake City.
Thompson, E. H.....	[6] Sgt.....	27	14	87.6	17	Yankton.
Trotter, C. F.....	[6] Pvt.....	8	4	96.2	3	Fort Assinaboine.
Twaddle, W. V.....	[2] Pvt.....	0	0	88.6	7	Santa Fe.
Van Harlingen, E. M.....	Pvt.....	.....	14	.....	.....	New Orleans.
Vining, G. H.....	Pvt.....	.....	4	.....	.....	Atlanta.
von Herrmann, C. F. {	Pvt. {	6	1	90.3	.....	Fort Concho.
.....	.....	7	0	95.9	7	San Antonio.
Wagg, A. M.....	[1] Pvt. {	.....	1	.....	.....	Rochester.
.....	.....	1	0	90.3	.....	Montgomery.
Walter, J. H.....	Pvt.....	.....	0	.....	.....	Philadelphia.
Wappenhans, C. F. R. {	Sgt.....	8	2	86.4	3	Indianapolis.
Webb, C. S.....	[1] Pvt.....	4	0	93.5	.....	Fort Thomas.
Weber, G. A.....	[6] Sgt.....	26	4	86.0	11	Saint Louis.
Welsh, L. A.....	[2] Cpl.....	13	0	83.6	14	Leavenworth.
White, A. L.....	[4] Pvt. {	.....	2	.....	.....	Cape Henry.
.....	.....	32	0	93.4	.....	Hatteras.
Whitmeyer, J. L. {	Pvt. {	99	2	83.8	.....	Prescott.
.....	.....	4	0	96.8	34	Fort Thomas.
Widmeyer, W. L.....	[1] Pvt. {	.....	3	.....	.....	Montgomery.
.....	.....	1	1	100.0	7	Pensacola.
Williams, F. T.....	Pvt.....	.....	2	.....	.....	Columbus.
Williams, J. R.....	[6] Sgt.....	46	1	95.7	29	Red Bluff.
Wood, Peter.....	[6] Sgt.....	6	3	88.6	1	Erie.
Wright, J. McN.....	Pvt. {	.....	1	.....	.....	Sandy Hook.
.....	.....	.....	2	.....	.....	Atlantic City.
.....	.....	.....	3	.....	.....	Norfolk.
Young, D. J.....	Pvt.....	.....	1	.....	.....	Fort Macon.
Young, J. H.....	[6] Pvt.....	71	1	94.0	68	Fort Mifflin.
Totals.....	.....	5885	912	17046.4	1744	.....
No. of forms examined.....	.....	883	.....	.....	141	.....
Average number of errors per form.....	.....	6.7	.....	.....	12.4	.....
Average percentage of sunset predictions.....	.....	.....	.....	87.0	.....	.....

CIRCULAR }
No. 3. }

Signal Office,
WAR DEPARTMENT,
Washington, March 1, 1886.

The tables herewith show for February, 1886 :

1. Changes in classes and work of stations.
2. Changes in stations and duties of officers.
3. Changes in stations and duties of enlisted men.
4. Promotions and casualties.

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

1. List of changes in classes and work of stations.

Station.	Class.		Instruction.		Remarks.
	From—	To—	No.	Date.	
Arlington, Tenn.		Special cotton-region	12	Feb. 24	Name changed from Withe, Tenn.
Cottage City, Mass.		Special display	8	4	Established.
Dalton, Ga.		Special cotton-region	10	16	Discontinued; to date Feb. 12.
Lexington, Mo.		Special river	11	18	Established.
Nantucket, Mass.		Special order	8	4	Established; displays cautionary signals.
Parker's, Oreg.		Repair	10	16	Continued in operation until further orders.
Withe, Tenn.		Special cotton-region	12	24	Name changed to Arlington, Tenn.

2. List of changes in stations and duties of officers.

Name.	Rank.	From—	Order—		Remarks.
			To—	No. Date.	
Maxfield, Joseph E.	2d Lieutenant.	Fort Myer, Va.	Washington City	36 Feb. 12	For duty.

3. List of changes in stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Barry, James A.....	Pvt.	Baltimore, Md.....	Charlotte, N. C.....	16	Feb. 18	In charge of station.
Beall, Samuel W.....	Sgt.	Atlanta, Ga.....		15	16	For special duty; afterwards to return to Atlanta.
Bozzell, Charles L.....	Pvt.	Cairo, Ill.....	Vincennes, Ind.....	11	5	For special duty; afterwards to return to Cairo.
Browne, Alexander W.....	Cpl.	Dubuque, Iowa.....	Rock Island, Ill.....	11	5	For discharge and re-enlistment; afterwards to return to Dubuque.
Byram, John W.....	Sgt.	Vicksburg, Miss.....		15	16	For special duty; afterwards to return to Vicksburg.
Chappel, Vernon P.....	Pvt.	Poplar River, Mont.....	Brownsville, Tex.....	12	10	In charge of station.
Coburn, Frederick S.....	Pvt.	Wilmington, N. C.....	Wilmington, N. C.....	17	24	In charge of station; confirming telegraphic instructions of Feb. 23.
Coburn, Frederick S.....	Pvt.	Fort Myer, Va.....	Wilmington, N. C.....	17	24	Assistant on station.
Curran, John J.....	Sgt.	Montgomery, Ala.....	Washington City.....	15	16	For temporary duty.
Dunne, Lawrence.....	Sgt.	Savannah, Ga.....		15	16	For special duty; afterwards to return to Montgomery.
Emery, Samuel C.....	Pvt.	Buffalo, N. Y.....	Saint Vincent, Minn.....	17	24	For special duty; afterwards to return to Savannah.
Evans, Edward A.....	Cpl.	Saint Vincent, Minn.....	Wilmington, N. C.....	17	24	In charge of station.
Fisher, David.....	Cpl.	Augusta, Ga.....		15	16	For special duty; afterwards to return to Augusta.
Flannery, David T.....	Sgt.	Memphis, Tenn.....		15	16	For special duty; afterwards to return to Memphis.
Garriott, Edward B.....	Sgt.	Louisville, Ky.....	Lexington, Ky.....	12	10	For special duty; afterwards to return to Louisville.
Goulding, Benjamin L.....	Sgt.	Little Rock, Ark.....		15	16	For special duty; afterwards to return to Little Rock.
Graham, Richard.....	Cpl.	Washington City.....	Nashville, Tenn.....	16	18	Assistant on station.
Hauey, Samuel A.....	Cpl.	Wilmington, N. C.....		15	16	For special duty; afterwards to return to Wilmington.
Haney, Samuel A.....	Pvt.	Wilmington, N. C.....	Wilmington, N. C.....	17	24	Assistant on station.

Haney, Samuel A	Pvt ..	Wilmingon, N. C	Fort Myer, Va	17	24	For misconduct and neglect of duty:
Hearne, Martin L	Sgt ..	Portland, Oreg	Vancouver, B. C., Wash. T.	12	10	For discharge and re-enlistment; afterwards to return to Portland.
Herman, Meyer	Sgt ..	New Orleans, La .....	.....	15	16	For special duty; afterwards to return to New Orleans.
Koonce, George W	Pvt ..	Washington City	Buffalo, N. Y	17	24	Assistant on station.
Lawton, George F	Pvt ..	Fort Myer, Va	Charlotte, N. C	14	13	Assistant on station.
Liebmann, Gustav	Sgt ..	Wood's Holl, Mass	Edgartown, Mass	13	12	For special duty; afterwards to return to Wood's Holl and proceed to Nantucket, Mass.
Ling, Charles W	Pvt ..	Chicago, Ill	Poplar River, Mont	12	10	In charge of station.
Linn, Frank E	Pvt ..	Fort Myer, Va	Chicago, Ill	12	10	Assistant on station.
McClone, John	Sgt ..	Brownsville, Tex	San Antonio, Tex	12	10	For duty.
MacInerney, E. O. C	Sgt ..	Galveston, Tex .....	.....	15	16	For special duty; afterwards to return to Galveston.
Mell, Patrick H	Pvt ..	Auburn, Ala	Washington City	14	13	For special duty; afterwards to return to Auburn.
O'Donoghue, Denis	Sgt ..	Charlotte, N. C	Washington City	16	18	For clerical duty.
Pritchard, Appleton	Sgt ..	Mobile, Ala .....	.....	15	16	For special duty; afterwards to return to Mobile.
Ramsey, John H	Pvt ..	Wash Woods, N. C	Fort Macon, N. C	14	13	Assistant on station.
Smith, James H	Sgt ..	Charleston, S. C .....	.....	16	16	For special duty; afterwards to return to Charleston.
Smith, W. Easby	Pvt ..	.....	Washington City	11	5	For temporary duty.
Smith, W. Easby	Pvt ..	Washington City	Atlanta, Ga	11	5	Assistant on station.
Vining, George H	Pvt ..	Atlanta, Ga	Key West, Fla	11	5	Assistant on station.
Williams, Albert L	Pvt ..	Fort Myer, Va	Baltimore, Md	16	18	Assistant on station.
Young, David J	Pvt ..	Fort Macon, N. C	Wash Woods, N. C	14	13	In charge of station.

4. *List of promotions and casualties.*

Name.	Rank.	Order.		Remarks.
		No.	Date.	
Belford, Frederick	Sergeant	16	Feb. 16	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Browne, Alexander W.	Corporal	22	Feb. 17.	listed Feb. 17.
Coleman, Daniel F.	1st Cl. Pvt.	4	Feb. 23.	Discharged; expiration of term of service. Character given, "good." Re-en-
Pitzgerald, James J.	Sergeant	12	Feb. 23.	listed Feb. 23.
Haney, Samuel A.	1st Cl. Pvt.	6	23	Discharged by order. Character given, "good."
Lewis, Robert E.	1st Cl. Pvt.	5	23	Discharged by order. Character given, "excellent."
McCann, John	1st Cl. Pvt.	12	23	Discharged by order. Character given, "fair."
Murdock, John	Sergeant	25	23	Discharged by order. Character given, "excellent."
Pennywitt, Henry	Corporal	6	23	Promoted from 1st Class Private.
Smith, W. Esby	1st Cl. Pvt.	6	23	Promoted from 2d Class Private; to date Feb. 5.
Townsend, Theodore F.	Sergeant	28	23	Discharged; expiration of term of service. Character given, "excellent."

CIRCULAR }
No. 4. }

Signal Office,
WAR DEPARTMENT.
Washington, April 1, 1886.

The tables herewith show for March, 1886 :

1. Changes in classes and work of stations.
2. Changes in stations and duties of officers.
3. Changes in stations and duties of enlisted men.
4. Orders revoked, changing duties of enlisted men.
5. Promotions and casualties.

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

1. List of changes in classes and work of stations.

Station.	Class.		Instruction.		Remarks.
	From—	To—	No.	Date.	
Anvik, Alaska.....	3d order.....	.....	19	Mar. 25	Discontinued.
Atka, Alaska.....	3d order.....	.....	19	25	Discontinued.
Barnegat City, N. J.....	.....	Special display.....	17	15	Established.
Behring's Island, Behring Sea.....	2d order.....	.....	16	9	Discontinued.
Chicago Water Crib, Chicago, Ill.....	.....	Cautionary display.....	15	5	Established; to date Mar. 15.
Cordova Bay, Alaska.....	3d order.....	.....	19	25	Discontinued.
Fort Alexander, Alaska.....	3d order.....	.....	19	25	Discontinued.
Fort Reliance, Alaska.....	3d order.....	.....	19	25	Discontinued.
Fort Saint Michael's, Alaska.....	2d order.....	.....	19	25	Discontinued.
Golovin Bay, Alaska.....	3d order.....	.....	19	25	Discontinued.
Hoonah, Alaska.....	3d order.....	.....	19	25	Discontinued.
Kendal, Alaska.....	3d order.....	.....	19	25	Discontinued.
Koskokvini, Alaska.....	3d order.....	.....	19	25	Discontinued.
Mission, Alaska.....	3d order.....	.....	19	25	Discontinued.
New River Inlet, N. C.....	Cautionary display.....	.....	16	9	Discontinued.
Nuduckayet, Alaska.....	3d order.....	.....	19	25	Discontinued.
Nulato, Alaska.....	3d order.....	.....	19	25	Discontinued.
Petropaulovski, Kamtschatka.....	3d order.....	.....	16	25	Discontinued.
Pyramid Harbor, Alaska.....	3d order.....	.....	19	25	Discontinued.
Saint George Island, Alaska.....	3d order.....	.....	19	25	Discontinued.
Tcha-tow-klin, Alaska.....	3d order.....	.....	19	25	Discontinued.
Traverse City, Mich.....	Special display.....	.....	15	5	Discontinued; to date Mar. 15.
Ugashik, Alaska.....	3d order.....	.....	19	25	Discontinued.
Unalashka, Alaska.....	2d order.....	.....	19	25	Discontinued.
Vincennes, Ind.....	.....	Special river.....	13	1	Established.
Yakutat Bay, Alaska.....	3d order.....	.....	19	25	Discontinued.

2. List of changes in stations and duties of officers.

Name.	Rank.	From—	To—	Order—		Remarks.
				No.	Date.	
Biddle, James.....	Major, 8th Cav.....	Fort Myer, Va.....	Fort Myer, Va.....	*65	Mar. 19	Assigned to command of post.
Maxfield, Joseph E.....	2d Lieut., S. C.....	Fort Myer, Va.....	Washington City.....	36	Feb. 12	For duty; to date Mar. 1.

3. List of changes in stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Adams, George E.....	Pvt.....	Washington City.....	Fort Myer, Va.....	20	Mar. 3	For instruction.
Bolton, William.....	Sgt.....	Rio Grande, N. J.....	Nantucket, Mass.....	19	2	For special duty.
Brewer, Isaac W.....	Pvt.....	Washington City.....	Fort Myer, Va.....	20	3	For instruction.
Call, Lewis W.....	Pvt.....	Saint Louis, Mo.....	Lamar, Mo.....	23	17	In charge of station.
Cappell, Charles C.....	Pvt.....	Washington City.....	Fort Myer, Va.....	20	3	For instruction.
Chappel, George M.....	Pvt.....	Mackinaw City, Mich.....	Fort Mackinac, Mich.....	22	10	For discharge and re-enlistment; afterwards to return to Mackinaw City.
Connor, Patrick.....	Sgt.....	Fort Grant, Ariz.....	Prescott, Ariz.....	24	13	Chief operator, Prescott section.
Dey, Luther M.....	Sgt.....	Philadelphia, Pa.....	Barnegat City, N. J.....	26	19	For special duty; afterwards to return to Philadelphia.
Dumont, Charles.....	Pvt.....	Fort Bowie, Ariz.....	Fort Apache, Ariz.....	23	12	Assistant on station.
Fickert, Fred W.....	Pvt.....	Portland, Oreg.....	Washington City.....	*50	2	For special duty.
Ford, Henry W.....	Pvt.....	Saint Louis, Mo.....	Fort Totten, Dak.....	21	5	In charge of station.
Ford, Esch W.....	Pvt.....	Nashville, Tenn.....	Fort Grant, Ariz.....	24	13	In charge of station.
Fullerton, Edward G.....	Pvt.....	Fort Benton, Mont.....	Fort Shaw, Mont.....	22	10	For discharge.

Glass, Elvin J	Pvt.	Fort Totten, Dak	Portland, Oreg.	21	5	Assistant on station.
Healy, John	Sgt.	Lamar, Mo.	Saint Louis, Mo.	25	17	For discharge.
Lane, Nathan D.	Sgt.	Prescott, Ariz.	Washington City	24	13	Assistant on station.
Lawton, George E.	Pvt.	Charlotte, N. C.	Nashville, Tenn.	24	13	Awaiting orders, pending discharge.
Lord, Robert C.	Sgt.	Fort Thomas, Ariz.	Washington City	27	25	For clerical duty.
Mahany, Michael	Sgt.	Fort Myer, Va.	Washington, N. C., &c.	28	1	For special duty; afterwards to return to Smithville.
Mitchell, Alexander J.	Pvt.	Smithville, N. C.	Fort Thomas, Ariz.	18	22	Assistant on station.
Monnier, Thomas	Pvt.	Maricopa, Ariz.	Fort Wayne, Mich.	27	22	For discharge and re-enlistment; afterwards to return to Grand Haven.
Mueller, Joseph E.	Sgt.	Grand Haven, Mich.	Fort Wayne, Mich.	27	22	For discharge and re-enlistment; afterwards to return to Ashland.
Newman, Fitzhugh	Pvt.	Ashland, Oreg.	Vancouver Barracks, Wash. T.	29	29	For instruction.
Olmsted, Heber W.	Pvt.	Washington City	Fort Myer, Va.	29	3	Assistant on station.
Olney, Edward B.	Pvt.	Louisville, Ky.	Saint Louis, Mo.	25	17	Assistant on station.
Oswell, Oscar N.	Pvt.	Cambridge, Mass.	Boston, Mass.	19	2	For special duty.
Penrod, George H.	Pvt.	Little Egg Harbor, N. J.	Nantucket, Mass.	19	2	For instruction.
Purcell, Ulysses G.	Pvt.	Washington City	Fort Myer, Va.	20	3	For instruction.
Ravenscraft, Elbridge M.	Pvt.	Washington City	Fort Myer, Va.	20	3	For instruction.
Reeder, George	Pvt.	Washington City	Fort Myer, Va.	20	3	Assistant on station.
Ryder, John N.	Pvt.	Indianapolis, Ind.	Saint Louis, Mo.	21	5	For special duty; afterwards to return to Saint Paul.
Salebury, George N.	Pvt.	Saint Paul, Minn.	Bismarck, Dak.	18	1	For instruction.
Schneider, Charles F.	Pvt.	Washington City	Fort Myer, Va.	20	3	For instruction.
Schneider, Henry	Pvt.	Washington City	Fort Myer, Va.	20	3	For instruction.
Thompson, Arthur	Pvt.	Washington City	Fort Myer, Va.	20	3	For instruction.
Vose, Elisha C.	Pvt.	Washington City	Fort Myer, Va.	20	3	In charge of station.
Whitmeyer, Jacob L.	Pvt.	Fort Thomas, Ariz.	Fort Myer, Va.	27	22	For instruction.
Whitney, William A.	Pvt.	Washington City	Fort Myer, Va.	20	3	For instruction.
Wilson, Wilford M.	Pvt.	Washington City	Fort Myer, Va.	20	3	For instruction.

* Adjutant General's Office.

4. List of orders revoked, changing duties of enlisted men.

Name.	Rank.	From—	To—	Order. No. Date.	Remarks.
Haney, Samuel A.....	Cpl.	Wilmington, N. C.....	Goldborough, N. C., &c.	15 Feb. 16	Revoked by par. I, S. O. No. 18, Mar. 1.

5. List of promotions and casualties.

Name.	Rank.	Order. No. Date.	Remarks.
Allen, George.....	2d Cl. Pvt.	Mar. 16	Discharged; expiration of term of service. Character given, "very good." Re-enlisted Mar. 17.
Balster, John.....	2d Cl. Pvt.	7	Discharged; expiration of term of service. Character given, "excellent." Re-enlisted Mar. 8.
Chappel, George M.....	1st Cl. Pvt.	29	Discharged; expiration of term of service. Character given, "excellent." Re-enlisted Mar. 30.
Connor, Patrick.....	Sergeant	3	Discharged; expiration of term of service. Character given, "excellent." Re-enlisted Mar. 4.
Hase-Hagen, George.....	Corporal	7	Promoted from 1st Class Private.
Healy, John.....	Sergeant	31	Discharged by order. Character given, "excellent."
Kelly, John F.....	2d Cl. Pvt.	19	Discharged by order. Character given, "very good."
Lacey, James J.....	1st Cl. Pvt.	4	Discharged by order. Character given, "fair, but intemperate."
Mathews, Albert L.....	1st Cl. Pvt.	31	Discharged by order. Character given, "indifferent."
Parker, John D.....	Sergeant	1	Promoted from Corporal.
Schneider, August.....	Corporal	27	Discharged; expiration of term of service. Character given, "excellent." Re-enlisted Mar. 28.
Townsend, Theodore F.....	Sergeant	1	Re-enlisted Mar. 1.
Williams, Henry E.....	Sergeant	23	Discharged; expiration of term of service. Character given, "excellent." Re-enlisted Mar. 24.

CIRCULAR }
No. 5. }

Signal Office,
WAR DEPARTMENT,
Washington, May 1, 1886.

The tables herewith show for April, 1886 :

1. Changes in classes and work of stations.
2. Changes in stations and duties of enlisted men.
3. Orders revoked, changing duties of enlisted men.
4. Promotions and casualties.

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

1. *List of changes in classes and work of stations.*

Station.	Class.		Instruction.		Remarks.
	From—	To—	No.	Date.	
Cottage City, Mass	Special display	3d order	21	Apr. 13	Changed; displays cautionary signals.
Edgartown, Mass	Special display	3d order	21	13	Established; displays cautionary signals.
Escanaba, Mich	2d order	Special display	26	26	Changed; to date July 1, 1886.
Forrest City, Ark	Special display	Special cotton-region	22	22	Established; to date May 1, 1886.
Fort Smith, Ark	Special display	2d order	21	13	Displays cold-wave signals.
Green Bay, Wis	Special display	2d order	25	26	Changed; displays cautionary signals; to date July 1, 1886.
Madison, Ark	Special cotton-region	Special cotton-region	24	22	Discontinued; to date April 30.
Wickenburg, Ariz	3d order	Special cotton-region	22	20	Discontinued.
Cincinnati, Ohio	Special display	Special display	21	13	3 a. m. observation discontinued; to date May 1, 1886.

2. *List of changes in stations and duties of enlisted men.*

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Applegate, Samuel	Sgt ..	Unalaska, Alaska	San Francisco, Cal	36	Apr. 12	For temporary duty.
Blundon, Benjamin A	Sgt ..	Atlantic City, N. J.	Nantucket, Mass	34	9	To open a 2d order station.
Boyer, Harry B	Pvt ..	Key West, Fla	Sand Key Light, Fla	32	7	For special duty; afterwards to return to Key West.
Boyer, Harry B	Pvt ..	Key West, Fla	Saint Augustine, Fla	42	28	For discharge and re-enlistment; afterwards to return to Key West.
Buell, Allen	Sgt ..	Chicago, Ill	Saint Joseph, Mich., &c ..	32	7	For special duty; afterwards to return to Chicago.

2. *List of changes in stations and duties of enlisted men—Continued.*

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Pritchard, Appleton.....	Sgt.	Mobile, Ala.....	Fort Morgan, Ala.....	32	April 7	For special duty; afterwards to re- turn to Mobile.
Raymond, Charles G.....	Pvt.	Washington City.....	Cottage City, Mass.....	30	2	For special duty.
Raymond, Charles G.....	Pvt.	Cottage City, Mass.....	Nantucket, Mass.....	34	9	Assistant on station.
Read, Charles A.....	Cpl.	Winnemucca, Nev.....	Fort Halleck, Nev.....	42	28	For discharge and re-enlistment; af- terwards to return to Winnemucca.
Reed, Isaac A.....	Sgt.	Indianola, Tex.....	Corpus Christi, Tex.....	32	7	For special duty; afterwards to re- turn to Indianola.
Rhode, Samuel W.....	Sgt.	Milwaukee, Wis.....	Racine, Wis. &c.....	32	7	For special duty; afterwards to re- turn to Milwaukee.
Schlenck, Gustavus.....	Pvt.	Oxford, Ohio.....	Leavenworth, Kans.....	42	28	Assistant on station.
Sherman, John H.....	Sgt.	New Haven, Conn.....	New Haven Light, Conn.....	32	7	For special duty; afterwards to re- turn to New Haven.
Sherry, James P.....	Sgt.	Norfolk, Va.....	Fort Monroe, Va.....	32	7	For special duty; afterwards to re- turn to Norfolk.
Sherwood, Timothy W.....	Pvt.	Pike's Peak, Colo.....	Fort Huachuca, Ariz.....	39	17	For special duty.
Sims, Alfred F.....	Pvt.	Leavenworth, Kans.....	Dodge City, Kans.....	41	28	Assistant on station.
Smith, John W.....	Sgt.	Jacksonville, Fla.....	Fernandina, Fla., &c.....	32	7	For special duty; afterwards to re- turn to Jacksonville.
von Herrmann, Charles F.....	Pvt.	San Antonio, Tex.....	Fort Huachuca, Ariz.....	39	17	For special duty.
Weber, Gustavus A.....	Sgt.	Saint Louis, Mo.....	Kansas City, Mo.....	42	28	For special duty; afterwards to re- turn to Saint Louis.
Whitmeyer, Jacob L.....	Pvt.	Fort Thomas, Ariz.....	Fort Huachuca, Ariz.....	39	17	For special duty.
Wood, Peter.....	Sgt.	Eric, Pa.....	Ashtabula, Ohio, &c.....	32	7	For special duty; afterwards to re- turn to Erie.

Call, Lewis W	Pvt.	Lamar, Mo.	Washington City	41	26	For clerical duty.
Cardon, George A.	Pvt.	Chicago, Ill.	Lamar, Mo.	41	26	In charge of station.
Clarke, Frederic H.	Sgt.	Fort Saint Michael's, Alaska	San Francisco, Cal.	36	12	For temporary duty.
Coburn, Frederick S.	Pvt.	Wilmington, N. C.	Fort Myer, Va.	38	14	For misconduct (drunkenness).
Cole, Otto B.	Sgt.	Boston, Mass.	Marblehead, Mass., &c.	32	7	For special duty; afterwards to re-
Conger, Norman B.	Sgt.	Detroit, Mich.	Sand Beach, Mich., &c.	32	7	turn to Boston.
Conway, John O.	Sgt.	Narragansett Pier, R. I.	Point Judith, R. I.	32	7	For special duty; afterwards to re-
Dent, William W.	Pvt.	Erie, Pa.	Marquette, Mich.	34	9	turn to Detroit.
Ditley, Charles B.	Pvt.	Washington City	Chicago, Ill.	41	26	For special duty; afterwards to re-
Eichelberger, William W.	Sgt.	New York City	City Island, N. Y.	32	7	turn to Narragansett Pier.
Emery, Samuel C.	Sgt.	Savannah, Ga.	Port Royal, S. C., &c.	32	7	For special duty; afterwards to re-
French, Enoch W.	Pvt.	Fort Grant, Ariz.	Fort Thomas, Ariz.	40	20	turn to Savannah.
Fuiter, William D.	Pvt.	Denver, Colo.	Salt Lake City, Utah.	31	5	Assistant on station.
Gibson, Thomas	Pvt.	San Luis Obispo, Cal.	Fort Grant, Ariz.	40	20	In charge of station.
Hay, George W.	Sgt.	Washington City	Atlantic City, N. J.	34	9	In charge of station.
Herman, Meyer	Sgt.	New Orleans, La.	Port Eads, La.	32	7	For special duty; afterwards to re-
Rutcliffson, Pearson M.	Pvt.	Marquette, Mich.	Erie, Pa.	34	9	turn to New Orleans.
Johnson, James W.	Pvt.	Fort Alexander, Alaska	San Francisco, Cal.	36	12	Assistant on station.
Kinney, Burton A.	Pvt.	Portland, Me.	Bath, Me., &c.	32	7	For temporary duty.
Kuntz, Thomas A.	Pvt.	Norfolk, Va.	Wilmington, N. C.	38	14	For special duty; afterwards to re-
Liebmann, Gustav	Sgt.	Nantucket, Mass.	Cottage City, Mass.	34	9	turn to Portland.
Linsley, Julius G.	Sgt.	Oswego, N. Y.	North Fair Haven, N. Y., &c.	32	7	Assistant on station.
Lynch, John G.	Sgt.	New London, Conn.	Stonington, Conn., &c.	32	7	For special duty; afterwards to re-
Marbury, John B.	Sgt.	Salt Lake City, Utah.	Helena, Mont.	31	6	turn to New London.
McGann, Edward W.	Sgt.	Rochester, N. Y.	Charlotte, N. Y.	32	7	Assistant on station.
McGlone, John.	Sgt.	Dodge City, Kans.	San Antonio, Tex.	41	26	For special duty; afterwards to re-
Miller, William S.	Pvt.	Fort Huachuca, Ariz.	Fort Huachuca, Ariz.	39	17	turn to Rochester.
Mounier, Thomas	Pvt.	Washington City	Denver, Colo.	40	20	In charge of station.
Paxton, Rutherford H.	Cpl.	Nantucket, Mass.	Edgartown, Mass.	31	5	For special duty.
Penrod, George H.	Pvt.			34	9	Assistant on station.
						To open a 3d order station.

3. List of orders revoked, changing duties of enlisted men.

Name.	Rank.	Order.		Remarks.
		No.	Date.	
Liebmann, Gustav	Sergeant ...	34, Par. II.	April 9	Revokes so much of S. O. No. 9, C. S., as directs Sergeant Liebmann to open a 2d order station at Nantucket, Mass.

4. List of promotions and casualties.

Name.	Rank.	Order.		Remarks.
		No.	Date.	
Bailey, William O	1st Cl. Pvt.	13	April 5	Reduced from Sergeant, for gross errors in meteorological work.
Barry, James A	Corporal ...	10	1	Promoted from 1st Class Private.
Brown, Alexander W	Sergeant ...	10	1	Promoted from Corporal.
Burnley, Caleb D	1st Cl. Pvt.	13	5	Reduced from Corporal, for gross errors in meteorological work.
Chappel, Vernon P	Corporal ...	13	5	Promoted from 1st Class Private.
Crauc, Arthur B	Corporal ...	13	5	Promoted from 1st Class Private.
Dale, John R	2d Cl. Pvt.	14	17	Discharged by order. Character given, "excellent."
Daniels, Paul	Sergeant ...	14	21	Promoted from Corporal; to date April 13.
Deut, Albert J	1st Cl. Pvt.	14	19	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Edmondson, William M	Corporal ...	14	21	Promoted from Sergeant, for gross errors in meteorological work.
Evans, Edward A	1st Cl. Pvt.	13	5	Reduced from 1st Class Private.
Fallon, William H	Sergeant ...	10	1	Promoted from Corporal.
Farnell, Daniel N	1st Cl. Pvt.	13	5	Reduced from Sergeant, for gross errors in meteorological work.
Fisher, David	Sergeant ...	13	5	Promoted from Corporal.
Fitzgerald, John	Sergeant ...	13	5	Discharged by order. Character given, "excellent."
Fulleton, Edward G	1st Cl. Pvt.	13	5	Promoted from Corporal.
Gibson, Thomas	1st Cl. Pvt.	13	5	Reduced from Corporal, for gross errors in meteorological work.

4. List of promotions and casualties—Continued.

Name.	Rank.	Order.		Remarks.
		No.	Date.	
Grover, John.....	1st Cl. Pvt.	10	April 11	Reduced from Sergeant, for neglect of duty.
Henley, Charles S.....	2d Cl. Pvt.	13	17	Discharged by order. Character given, "excellent."
Knabe, Henry F.....	Corporal	13	5	Promoted from 1st Class Private.
Lord, Robert C.....	Sergeant	12	19	Discharged by order. Character given, "fair."
Martin, Robert R.....	Sergeant	6	6	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Moore, Willis L.....	1st Cl. Pvt.	20	20	listed April 7.
Mueller, Joseph E.....	Sergeant	47	47	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Narry, John J.....	1st Cl. Pvt.	13	5	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Newlin, James B.....	Sergeant	13	13	listed April 8.
Newman, Fitzhugh.....	1st Cl. Pvt.	18	18	Reduced from Sergeant, for gross errors in meteorological work.
Nelson, Dudley B.....	Sergeant	13	5	Discharged; expiration of term of service. Character given, "excellent." Re-en-
O'Donoghue, Denis.....	Corporal	13	20	Reduced from Sergeant, for gross errors in meteorological work. [listed April 19.
Oswell, Oscar N.....	Corporal	13	5	Discharged by order. Character given, "excellent."
Paxton, Rutherford H.....	Sergeant	14	5	Promoted from 1st Class Private.
Perry, Edward E.....	Corporal	14	21	Promoted from Corporal.
Read, Charles A.....	Corporal	13	5	Promoted from 1st Class Private.
Ridgway, Frank.....	Corporal	10	1	Promoted from 1st Class Private.
Sherwood, Andrew T.....	Sergeant	14	21	Promoted from Corporal.
Sherwood, Timothy W.....	1st Cl. Pvt.	14	21	Promoted from 2d Class Private; to date April 13.
Sprigg, James C., Jr.....	1st Cl. Pvt.	10	1	Reduced from Sergeant, for neglect of duty.
Stewart, John C.....	1st Cl. Pvt.	10	1	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Turton, John B.....	Sergeant	10	1	Promoted from Corporal.
Welsb, Lucius A.....	Sergeant	13	5	Promoted from Corporal.
Widmeyer, William L.....	Corporal	13	5	Promoted from 1st Class Private.
Williams, Frank T.....	1st Cl. Pvt.	24	24	Discharged; expiration of term of service. Character given, "excellent." Re-en-

CIRCULAR }
No. 6. }

Signal Office,
WAR DEPARTMENT.
Washington, June 1, 1886.

The tables herewith show for May, 1886 :

1. Changes in stations and duties of enlisted men.
2. Promotions and casualties.

BY ORDER OF THE CHIEF SIGNAL OFFICER :

B. M. PURSELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

1. List of changes in stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Albrecht, Louis H.....	Sgt.	Fort Davis, Tex.....	San Francisco, Cal.....	43	May 4	To await orders, pending discharge.
Applegate, Samuel.....	Sgt.	Unalakbka, Alaska.....		50	27	For discharge and re-enlistment, and return to Unalakbka (confirming telegraphic instructions of Mar. 1, May 5 and 12.)
Banks, Will R.....	Pvt.	Indianapolis, Ind.....	Washington City.....	46	11	For clerical duty.
Brewer, Madison M.....	Pvt.	Columbus, Ohio.....	Washington City.....	43	4	For clerical duty.
Burke, Frank.....	Sgt.	Fort Myer, Va.....	Louisville, Ky.....	45	8	In charge of station.
Coburn, Frederick S.....	Pvt.		Baltimore, Md.....	45	8	Assistant on station.
Chase, Eli D.....	Pvt.	New York City.....	Galveston, Tex.....	51	25	In charge of station.
Daniels, Paul.....	Sgt.	Louisville, Ky.....	Washington City.....	43	4	For clerical duty.
Garriott, Edward B.....	Sgt.	Fort Myer, Va.....	Washington City.....	45	8	For clerical duty.
Haney, Samuel A.....	Pvt.	Indianapolis, Ind.....	Indianapolis, Ind.....	43	4	Assistant on station.
Haney, Samuel A.....	Pvt.	Shreveport, La.....	Saint Louis, Mo.....	48	17	For special duty; afterwards to return to Shreveport.
Hill, John E.....	Pvt.	Baltimore, Md.....	Washington City.....	43	4	For discharge.
Knowles, Edwin C.....	Pvt.	Buffalo, New York.....	Columbus, Ohio.....	45	8	Assistant on station.
Koonce, George W.....	Sgt.	Galveston, Tex.....	San Francisco, Cal.....	51	25	To await orders, pending discharge.
MacInerney, Edward O.....	Pvt.	Memphis, Tenn.....	Fort Davis, Tex.....	44	6	For discharge.
Santry, John J.....	Pvt.	San Francisco, Cal.....	Roseburg, Oreg.....	43	4	In charge of station.
Nichols, Harland A.....	Pvt.		Washington City.....	44	6	For clerical duty.
Pague, Bener S.....	Pvt.	Saint Louis, Mo.....	Indianapolis, Ind.....	48	17	Assistant on station.
Roberson, Thomas A.....	Pvt.	Norfolk, Va.....	Norfolk Water-works.....	48	21	For special duty; afterwards to return to Norfolk (confirming journey performed on March 3 and 8, 1886).
Ryker, John N.....	Sgt.			49		For special duty; afterwards to return to Charleston.
Sherry, James P.....						
Smith, James H.....	Sgt.	Charleston, S. C.....	Saint Matthew's, S. C.....	47	14	

Townsend, Titus S.....	Pvt.	Washington City	Norfolk, Va.....	49	21	Assistant on station.
Van Hattengen, Edward M.....	Pvt.	New Orleans, La.....	Galveston, Tex.....	51	25	Assistant on station.
Warren, George A.....	Sgt.	Washington City.....	New York City.....	43	4	Assistant at Signal Service Agency.

2. List of promotions and casualties.

Name.	Rank.	Order.		Remarks.
		No.	Date.	
Albrecht, Louis H.....	Sergeant		May 25	Discharged; expiration of term of service. Character given, "good."
Applegate, Samuel.....	Sergeant		Apr. 30	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Boyer, Harry B.....	1st Cl. Pvt.		May 24	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Browne, Alexander W.....	1st Cl. Pvt.	16	19	Reduced from Sergeant, for gross neglect of duty.
Chappel, George M.....	Corporal	16	19	Promoted from 1st Class Private.
Eichelberger, William W.....	Sergeant		15	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Hearne, Martin L.....	Sergeant		Mar. 3	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Knowles, Edwin C.....	1st Cl. Pvt.		May 13	Discharged; expiration of term of service. Character given, "excellent." Re-en-
McDermott, Edward.....	2d Cl. Pvt.		1	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Nanry, John J.....	1st Cl. Pvt.		23	Discharged; expiration of term of service. Character given, "good."
Pennywitt, Henry.....	Sergeant	16	19	Promoted from Corporal.
Penrod, George H.....	1st Cl. Pvt.		6	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Read, Charles A.....	Corporal		22	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Stummets, David.....	2d Cl. Pvt.		16	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Thomson, Robert M.....	2d Cl. Pvt.		17	Discharged by order. Character given, "very good, when sober." Re-en-
Weber, Gustavus A.....	Sergeant		13	Discharged; expiration of term of service. Character given, "excellent." Re-en-

CIRCULAR }
No. 7. }

Signal Office,

WAR DEPARTMENT,

Washington, July 1, 1886.

The tables herewith show for June, 1886:

1. Changes in classes and work of stations.
2. Changes in duties of officers.
3. Changes in stations and duties of enlisted men.
4. Orders revoked, changing stations and duties of enlisted men.
5. Promotions and casualties.

BY ORDER OF THE CHIEF SIGNAL OFFICER:

B. M. PURSELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

1. List of changes in classes and work of stations.

Station.	Class.		Instruction.		Remarks.
	From—	To—	No.	Date.	
Carthage, Tenn.		Special river	31	June 16	Observations extended to August 1.
Cedar Tree Neck, Mass.		Special display	28	1	Established.
Elk Rapids, Mich.		Special display	30	14	To be closed; to date July 1.
Escanaba, Mich.		2d order	32	26	Revoles Ins. 25, current series.
Green Bay, Wis.		Special display	32	26	Revoles Ins. 25, current series.
Northport, Mich.		Special display	30	14	To be closed; to date July 1.
Palestine, Tex.		Special display	30	14	Displays cold-wave signals.
Sanford, Fla.		Speci.	30	14	Established.
Sanitary Head Light, Mass.		Special display	28	1	Discontinued; to date June 30.
Stockton, Fort Tex.	2d order		30	14	

2. List of changes in duties of officers.

Name.	Rank.	From—	To—	Order—		Remarks.
				No.	Date.	
Sebree, Leroy E.	2d Lieut., S. C.		San Antonio, Tex.	*116	May 15	Assigned in charge of mil. tel. lines, Dept. of Texas.

* Adjutant General's Office.

3. List of changes in stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Barber, John T	Pvt.	Prescott, Ariz.....	Fort Grant, Ariz.....	56	June 12	In charge of station (confirming telegraphic instructions dated May 5).
Bolton, William.....	Sgt.	Wood's Holl, Mass	Norfolk, Va.....	24		For special duty.
Bozzell, Charles L.....	Pvt.	Cairo, Ill.....	Paducah, Ky.....	69	22	For special duty; afterwards to return to Cairo.
Browne, Alexander W.....	Pvt.	Dubuque, Iowa	Chicago, Ill.....	54	7	Assistant on station.
Burnley, Caleb R.....	Pvt.	Valentine, Nebr.....	Omaha, Nebr.....	54	7	Assistant on station.
Burrows, William.....	Pvt.	San Carlos Agency, Ariz.....		56	12	For special duty (confirming telegraphic instructions dated May 4).
Cahill, Patrick J.....	Sgt.	Concordia, Kans.....	Nantucket, Mass.....	54	7	To open 2d order station.
Capwell, Charles C.....	Pvt.	Fort Myer, Va.....	Fort Bowie, Ariz.....	54	11	For special duty.
Clark, Robert A.....	Pvt.	Washington City.....	Washington City.....	54	24	For clerical duty.
Connell, Maurice.....	Pvt.	Los Angeles, Cal.....	San Francisco, Cal.....	60	12	Assistant on station.
Davis, Albert J.....	Pvt.	Cleveland, Ohio.....	Buffalo, N. Y.....	56	15	Assistant on station.
DeLano, Willie S.....	Pvt.	Buffalo, N. Y.....	Cleveland, Ohio.....	57	7	In charge of station.
Dille, Charles B.....	Pvt.	Shreveport, La.....	Valentine, Nebr.....	54	25	In charge of station.
Dumont, Charles.....	Pvt.	Chicago, Ill.....	Moorehead, Minn.....	61	12	For special duty (confirming telegraphic instructions dated May 4).
Dunn, Elias B.....	Sgt.	Fort Apache, Ariz.....	New York City.....	56	22	In charge of station.
Eichelberger, William W.....	Sgt.	New York City.....	Portland, Me.....	59	22	In charge of station.
Emery, Samuel C.....	Sgt.	Savannah, Ga.....	Dubuque, Iowa.....	54	7	In charge of station.
Fickett, Fred W.....	Pvt.	Washington City.....	Eastport, Me.....	54	7	Assistant on station.
French, Enoch W.....	Pvt.	Fort Grant, Ariz.....	Prescott, Ariz.....	56	12	For duty (confirming telegraphic instructions dated May 5).
Gibson, Thomas.....	Pvt.	San Luis Obispo, Cal.....	San Carlos Agency, Ariz.....	56	12	In charge of station (confirming telegraphic instructions dated May 7).
Goucher, Henry.....	Pvt.	Fort Myer, Va.....	Fort Bowie, Ariz.....	55	11	For special duty.
Graham, Richard.....	Cpl.	Nashville, Tenn.....	Savannah, Ga.....	54	7	In charge of station.
Haney, Samuel A.....	Pvt.	Saint Louis, Mo.....		54	7	Awaiting orders, pending discharge.
Harrod, Frank L.....	Pvt.	Cleveland, Ohio.....	Chicago, Ill.....	61	25	Assistant on station.
Hill, John E.....	Pvt.		Shreveport, La.....	54	7	In charge of station.

Kinney, Barton A.	Pvt.	Moorehead, Minn.	Portland, Me.	59	22	Assistant on station.
Kitchel, Charles N.	Sgt.	Columbus, Ohio	Buffalo, N. Y.	58	21	For discharge.
Koonce, George W.	Pvt.	Ocean City, Md.	Fort Sully, Dak.	57	15	Assistant on station.
Krueger, Albert C.	Pvt.	Chicago, Ill.	San Antonio, Tex.	54	7	In charge of station.
Linn, Frank E.	Pvt.	Galveston, Tex.	Washington City	52	2	Assistant on station.
MacInerney, Edward O.	Sgt.	Washington City	Ocean City, Md.	60	24	For discharge.
Maverick, Mantion	Pvt.	Fort Myer, Va.	Fort Bowie, Ariz.	54	7	For clerical duty.
Meekins, Edward N.	Pvt.	Cheyenne, Wyo.	Concordia, Kans.	55	11	In charge of station.
Neifert, William W.	Pvt.	.....	New York City	54	7	In charge of station.
Norton, Dudley B.	Sgt.	.....	Frisco, Utah	62	30	Assistant on station.
Philebaum, Edward M.	Pvt.	.....	Green Bay, Wis.	54	2	To open 2d order station.
Pindell, Lewis M.	Sgt.	.....	Escanaba, Mich.	52	2	In charge of station.
Pindell, Samuel W.	Sgt.	Milwaukee, Wis.	Chicago, Ill.	60	24	For discharge and re-enlistment; afterwards to return to Milwaukee.
Richardson, William F.	Pvt.	Eastport, Me.	Nashville, Tenn.	55	21	For discharge and re-enlistment; afterwards to return to Milwaukee.
Richey, Stephen R.	Pvt.	Fort Sully, Dak.	Cheyenne, Wyo.	54	7	Assistant on station.
Rush, Sylvester R.	Pvt.	Omaha, Nebr.	Frisco, Utah	54	7	In charge of station.
Salsbury, George N.	Pvt.	Saint Paul, Minn.	Escanaba, Mich.	52	2	In charge of station.
Salsbury, George N.	Pvt.	Escanaba, Mich.	Saint Paul, Minn.	60	24	Assistant on station.
Sherwood, Andrew T.	Sgt.	Bismarck, Dak.	Fort A. Lincoln, Utah.	57	15	For special duty; afterwards to return to Bismarck.
Strong, Charles M.	Pvt.	Buffalo, N. Y.	Columbus, Ohio.	57	15	Assistant on station.
Whitney, William A.	Pvt.	Fort Myer, Va.	Fort Bowie, Ariz.	55	11	For special duty.
Widmeyer, James J.	Pvt.	Fort Myer, Va.	Fort Bowie, Ariz.	55	11	For special duty.
Wright, John McNair	Pvt.	Norfolk, Va.	Fort Monroe, Va.	53	4	For discharge.

4. Last of orders revoked, changing stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
French, Enoch W.	Pvt.	Fort Grant, Ariz.	Fort Thomas, Ariz.	40	Apr. 20	Revoked by Par. I, S. O. 56, June 12.
Gibson, Thomas	Pvt.	San Luis Obispo, Cal.	Fort Grant, Ariz.	40	20	Revoked by Par. I, S. O. 56, June 12.

5. List of promotions and casualties.

Name.	Rank.	Order.		Remarks.
		No.	Date.	
Baldwin, H. McP	1st Cl. Pvt. ....	.....	June 2	Discharged; expiration of term of service. Character given, "good." Re-enlisted June 3.
Barry, James A.	Sergeant	18	16	Promoted from Corporal.
Capwell, Charles C.	1st Cl. Pvt.	18	16	Promoted from 2d Class Private; to date June 11.
Dailey, William J.	Corporal .....	.....	15	Discharged; expiration of term of service. Character given, "excellent." Re-enlisted June 16
Goucher, Henry	1st Cl. Pvt.	18	16	Promoted from 2d Class Private; to date June 11.
Haas-Hagen, George	Sergeant	18	16	Promoted from Corporal; to date June 1.
Kenealy, James	Sergeant .....	.....	23	Discharged; expiration of term of service. Character given, "excellent." Re-enlisted June 24.
MacInerney, Edward O'C	Sergeant .....	.....	15	Discharged by order, at his own request. Character given, "excellent."
Mahany, Michael	Sergeant	20	18	Appointment as 1st Sergeant terminated; to date March 26.
Neifert, William W.	1st Cl. Pvt.	18	16	Promoted from 2d Class Private; to date June 11.
Newman, Fitzhugh	Corporal	18	16	Promoted from 1st Class Private; to date June 1.
Penrod, George H.	Corporal	18	16	Promoted from 1st Class Private.
Ray, Charles A.	1st Cl. Pvt. ....	.....	17	Discharged by order, at his own request. Character given, "good."
Rhode, Samuel W.	Sergeant .....	.....	29	Discharged; expiration of term of service. Character given, "excellent." Re-enlisted June 30.
Whitney, William A.	1st Cl. Pvt.	18	16	Promoted from 2d Class Private; to date June 11.
Widmeyer, James I.	1st Cl. Pvt.	18	16	Promoted from 2d Class Private; to date June 11.
Wright, J. McNair	1st Cl. Pvt. ....	.....	12	Discharged by order. Character given, "good."

CIRCULAR }
No. 8. }

Signal Office,
WAR DEPARTMENT,
Washington, August 5, 1886.

The tables herewith show for July, 1886 :

1. Changes in classes and work of stations.
2. Changes in stations and duties of officers.
3. Changes in stations and duties of enlisted men.
4. Promotions and casualties.

BY ORDER OF THE CHIEF SIGNAL OFFICER :

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

1. *List of changes in classes and work of stations.*

Station.	Class.		Instruction.		Remarks.
	From—	To—	No.	Date.	
Corpus Christi, Tex.....	.....	2d order.....	38	July 31	Established; to date October 1. To display
Green Bay, Wis.....	Special display.....	2d order.....	38	31	cautionary signals.
Indianola, Tex.....	2d order.....	.....	38	31	Changed; to date September 1. To display
Valentine, Nebr.....	.....	.....	36	19	cautionary signals.
					Discontinued; to date September 30.
					To display cold-wave signals.

2. *List of changes in stations and duties of officers.*

Name.	Rank.	From—	To—	Order—		Remarks.
				No.	Date.	
Wright, William D.....	2d Lieut. S. C.	Fort Meyer, Va.....	On leave.....	*165,	July 19	Granted leave of absence for
				par.10		four months; to take effect
Greene, Frank.....	2d Lieut., S. C.	.....	.....	29	20	August 1.
Walshe, John C.....	2d Lieut., S. C.	.....	.....	29	20	Announced as Assistant.
Pursell, Benjamin M.....	2d Lieut., S. C.	.....	.....	29	20	Announced as Assistant.
Beall, Fielder M. M.....	2d Lieut., S. C.	.....	.....	29	20	Announced as Assistant.
Finley, John P.....	2d Lieut., S. C.	.....	.....	29	20	Announced as Assistant.
Maxfield, Joseph E.....	2d Lieut., S. C.	.....	.....	29	20	Announced as Assistant.
Day, Frederick R.....	2d Lieut., S. C.	.....	.....	29	20	Announced as Assistant.

* Adjutant General's Office.

3. List of changes in stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Adams, George E.	Pvt.	Fort Myer, Va.	Washington City	68	July 23	For temporary duty.
Adams, George E.	Pvt.	Washington City	Leavenworth, Kans.	69	28	Assistant on station.
Beals, Edward A.	Sgt.	Chattanooga, Tenn.	Fort Custer, Mont.	69	28	In charge of station.
Blundon, Benjamin A.	Sgt.	Atlantic City, N. J.	Somer's Point, N. J.	69	28	For special duty; afterwards to re- turn to Atlantic City.
Brewer, Isaac W.	Pvt.	Fort Myer, Va.	Washington City	68	23	For temporary duty.
Brewer, Isaac W.	Pvt.	Washington City	Kitty Hawk, N. C.	69	28	Assistant on station.
Coburn, Frederick S.	Pvt.	Baltimore, Md.	Norfolk, Va.	69	28	Assistant on station.
Dalley, William J.	Cpl.	Fort Custer, Mont.	Baltimore, Md.	69	28	Assistant on station.
Davis, Albert J.	Pvt.	Cleveland, Ohio	San Antonio, Tex.	69	26	In charge of station.
Dilley, Charles B.	Pvt.	Moorhead, Minn.	Pittsburg, Pa.	69	28	To await orders, pending discharge.
Earnest, J. Paul	Pvt.	Vicksburg, Miss.	Pittsburg, Pa.	69	28	Assistant on station.
Eccard, Adolf	Sgt.	Washington City	Mount Washington, N. H.	66	20	For special duty; afterwards to re- turn to Washington City.
Glaes, Elvin J.	Pvt.	Portland, Oreg.	Moorhead, Minn.	69	28	In charge of station.
Graham, Charles C.	Pvt.	Milwaukee, Wis.	Portland, Oreg.	69	28	In charge of station.
Grover, John	Pvt.	Keeler, Cal.	Portland, Oreg.	69	28	Assistant on station.
Grurow, Dexter C.	Pvt.	Pittsburg, Pa.	Keeler, Cal.	69	28	In charge of station.
Hall, Harry	Sgt.	Pike's Peak, Colo.	San Diego, Cal.	69	28	To await orders, pending discharge.
Hearne, Martin L.	Sgt.	Portland, Oreg.	Rochester, N. Y.	69	28	In charge of station.
Hinman, Richard E.	Pvt.	New York City	Saint Paul, Minn.	70	31	Temporarily in charge of station.
Holbs, Everett C.	Pvt.	Rochester, N. Y.	Fort Buford, Dak.	64	10	Temporarily in charge of station.
Kinney, Burton A.	Pvt.	Little Rock, Ark.	New York City	64	10	Assistant on station.
Kinney, Burton A.	Pvt.	Portland, Me.	New York City	64	10	To await orders, pending discharge.
McCreery, Hawes	Pvt.	New York City	Washington City	68	23	For temporary duty.
McCreery, Hawes	Pvt.	Washington City	Philadelphia, Pa.	68	23	Assistant on station.
McGann, Edward W.	Sgt.	Rochester, N. Y.	Washington City	64	10	Temporarily absent with leave.
McGinnis, David R.	Pvt.	Saint Paul, Minn.	Washington City	70	31	To await orders, pending discharge.
McGlone, John	Sgt.	San Antonio, Tex.	Washington City	69	28	For clerical duty under Lieutenant Seabee.
Moffette, Edward	Cpl.	Philadelphia, Pa.	Washington City	69	28	To await orders, pending discharge.

Moloney, Philip.....	Cpl.	Fort Myer, Va.....	Washington City.....	66	20	For duty.
O'Dowd, Richard.....	Pvt.	Fort Myer, Va.....	Fort Bowie, Ariz.....	69	28	For special duty in the field.
Olmsted, Heber W.....	Pvt.	Fort Myer, Va.....	Washington City.....	68	23	For temporary duty.
Philbaum, Edward M.....	Pvt.	Washington City.....	Fort Macon, N. C.....	69	28	Assistant on station.
Phillips, William.....	Pvt.	Fort Canby, Wash. T.....	Fort Canby, Wash. T.....	69	28	Assistant on station.
Pindell, Lewis M.....	Sgt.	Fort Hawk, N. C.....	Washington City.....	69	28	For clerical duty.
Pursell, Ulysses G.....	Pvt.	Fort Myer, Va.....	Chattanooga, Tenn.....	68	23	In charge of station.
Ramsay, John H.....	Pvt.	Washington City.....	Washington City.....	69	28	For temporary duty.
Rattler, Randow.....	Pvt.	Pike's Peak, Colo.....	Boston, Mass.....	69	28	Assistant on station.
Ravenscraft, Elbridge M.....	Pvt.	Fort Macon, N. C.....	Washington City.....	69	28	In charge of station.
Reeder, George.....	Pvt.	Fort Myer, Va.....	Washington City.....	70	31	To await orders, pending discharge.
Reeder, George.....	Pvt.	Fort Myer, Va.....	Washington City.....	68	23	For duty.
Robinson, Walter F.....	Pvt.	Washington City.....	Vicksburg, Miss.....	68	23	For temporary duty.
Salisbury, George N.....	Pvt.	Boston, Mass.....	New York City.....	69	28	Assistant on station.
Schlenck, Gustavus.....	Pvt.	Saint Paul, Minn.....	Washington City.....	70	31	Assistant on station.
Schneider, August.....	Cpl.	Leavenworth, Kans.....	Washington City.....	69	28	State Weather Service.
Schneider, Charles F.....	Pvt.	Fort Buford, Dak.....	Washington City.....	64	10	To await orders, pending discharge.
Schneider, Charles F.....	Pvt.	Washington City.....	Pike's Peak, Colo.....	68	23	Temporarily absent with leave.
Schneider, Henry.....	Pvt.	Fort Myer, Va.....	Washington City.....	69	28	For temporary duty.
Schneider, Henry.....	Pvt.	Washington City.....	Maricopa, Ariz.....	68	23	Assistant on station.
Slaughter, J. Pemberton.....	Pvt.	Fort Stockton, Tex.....	Brownsville, Tex.....	69	28	For temporary duty.
Smith, John W.....	Sgt.	Jacksonville, Fla.....	Fernandina, Fla.....	63	16	Assistant on station.
						For special duty; afterward to return to Jacksonville (confirming telegraphic instructions dated July 1).
Spriger, James C., Jr.....	Pvt.	San Diego, Cal.....	San Francisco, Cal.....	69	28	For duty under Lieut. Glassford.
Thompson, Arthur.....	Pvt.	Fort Myer, Va.....	Washington City.....	68	23	For temporary duty.
Townsend, Titus S.....	Pvt.	Washington City.....	Norfolk, Va.....	69	28	Assistant on station.
Vose, Elisha C.....	Pvt.	Norfolk, Va.....	Escanaba, Mich.....	69	28	In charge of station.
Vose, Elisha C.....	Pvt.	Fort Myer, Va.....	Washington City.....	68	23	For temporary duty.
Whitfield, Augustus F.....	Pvt.	Washington City.....	Milwaukee, Wis.....	69	28	Assistant on station.
Wilson, Wilford M.....	Pvt.	Pensacola, Fla.....	Fort Thomas, Ariz.....	69	28	Assistant on station.
Wilson, Wilford M.....	Pvt.	Fort Myer, Va.....	Washington City.....	68	23	For temporary duty.
Wilson, Wilford M.....	Pvt.	Washington City.....	Cleveland, Ohio.....	69	28	Assistant on station.

4. List of promotions and casualties.

Name.	Rank.	Order.		Remarks.
		No.	Date.	
Boyer, Harry B	Corporal	25	July 12	Promoted from 1st Class Private; to date July 7.
Burrows, William	1st Cl. Pvt.	25	12	Promoted from 2d Class Private; to date July 1.
Connell, Maurice	2d Cl. Pvt.	24	24	Discharged; expiration of term of service. Character given, "excellent."
Donhauser, Alois	Sergeant	7	7	Discharged; expiration of term of service. Character given, "excellent." Re-en-listed July 8.
Hauey, Samuel A.	1st Cl. Pvt.	6	6	Discharged by order. Character given, "indifferent."
Kinney, Burton A.	1st Cl. Pvt.	31	31	Discharged by order, at his own request. Character given, "excellent."
Kitchel, Charles N.	Sergeant	6	6	Discharged; expiration of term of service. Character given, "excellent."
Liebmann, Gustav	Sergeant	19	19	Deserted from Cottage City, Mass.
Ridgway, Frank	Sergeant	12	12	Promoted from Corporal; to date July 7.

Signal Office,

WAR DEPARTMENT.

CIRCULAR }
No. 9. }

Washington, August 20, 1886.

The accompanying list of Signal Service stations, in operation at this date, is published for the information and guidance of all concerned.

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER :

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

[See G. O. Nos. 3 and 52, series 1883, G. O. No. 71 and Circular 13, series 1884, and Circular 14, series 1885.]

SIGNAL SERVICE STATIONS.

STATIONS OF THE FIRST ORDER,

Making continuous records by means of self-registering instruments.
Washington City. ||

STATIONS OF THE SECOND ORDER,

Taking seven observations daily.

Boston, Mass. †* ||	Prescott, Ariz.
Chicago, Ill. †* ||	Saint Louis, Mo. ‡ ||
New York City. †* ||	San Francisco, Cal. †*
Philadelphia, Pa.	

Taking six observations daily.

Mount Washington, N. H.	Pike's Peak, Colo.
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Taking four observations daily.

Abilene, Tex.	Cape Mendocino, Cal.
Albany, N. Y.	Cedar Keys, Fla. †* ‡
Alpena, Mich. †*	Charleston, S. C. †* ‡ ||
Apache, Fort, Ariz.	Charlotte, N. C. ‡ ||
Assiniboine, Fort, Mont.	Chattanooga, Tenn. ‡ || ‡ ||
Atlanta, Ga. ‡ ||	Cheyenne, Wyo. ||
Atlantic City, N. J. †*	Chincoteague, Va. †*
Augusta, Ga. † ‡ ‡ ||	Cincinnati, Ohio. ‡ ||
Baltimore, Md. †* ||	Cleveland, Ohio. †* ||
Benton, Fort, Mont.	Columbus, Ohio. ||
Bidwell, Fort, Cal.	Concordia, Kans. ||
Bismarek, Dak.	Corpus Christi, Tex.*
Block Island, R. I. †*	Custer, Fort, Mont.
Boisé City, Idaho.	Davenport, Iowa. ‡ ||
Bridger, Fort, Wyo.	Davis, Fort, Tex.
Brownsville, Tex.	Deadwood, Dak.
Buffalo, N. Y. †* ||	Denver, Colo. ||
Buford, Fort, Dak.	Des Moines, Iowa. ||
Cairo, Ill. ‡ ||	Detroit, Mich. †* ||
Canby, Fort, Wash. †*	Dodge City, Kans. ||
Cape Henry, Va. *	Dubuque, Iowa. ‡ ||

Duluth, Minn. *†	Moorhead, Minn.
Eastport, Me. †*	Mumtrekhlagumut, K o s k o k v i m
Elliott, Fort, Tex.	River, Alaska.
El Paso, Tex.	Nantucket, Mass. *
Erie, Pa. *||	Nashville, Tenn. †‡||
Escanaba, Mich. †*	New Haven, Conn. ||
Fort Smith, Ark. †‡||	New London, Conn. †*||
Frisco, Utah.	New Orleans, La. †*‡||
Galveston, Tex. †*‡||	Norfolk, Va. †*||
Grand Haven, Mich. †*||	North Platte, Nebr. ||
Grant, Fort, Ariz.	Olympia, Wash.
Green Bay, Wis. *	Omaha, Nebr. †||
Greencastle, Ind. ||	Oswego, N. Y. *||
Hatteras, N. C. *	Palestine, Tex. ‡||
Helena, Mont.	Pensacola, Fla. †*
Huron, Dak.	Pittsburg, Pa. †||
Indianapolis, Ind. ||	Poplar River, Mont.
Jacksonville, Fla. †*||	Port Angeles, Wash. *
Keeler, Cal.	Port Huron, Mich. *
Keokuk, Iowa. †||	Portland, Me. †*||
Key West, Fla. †*	Portland, Oreg. ††
Kitty Hawk, N. C. *	Red Bluff, Cal. †
Knoxville, Tenn. †||	Rio Grande City, Tex.
La Crosse, Wis. †||	Rochester, N. Y. ||
Lamar, Mo. ||	Roseburg, Oreg.
Leavenworth, Kans. †||	Sacramento, Cal. †
Little Rock, Ark. †‡||	Saint Paul, Minn. †||
Los Angeles, Cal.	Saint Vincent, Minn.
Louisville, Ky. †||	Salt Lake City, Utah.
Lynchburg, Va. ||	San Antonio, Tex. ‡
Mackinaw City, Mich. †*	San Diego, Cal. *
Macon, Fort, N. C. *	Sandusky, Ohio. †*||
Maginnis, Fort, Mont.	Sandy Hook, N. J. †*
Marquette, Mich. †*	Sanford, Fla. ||
Memphis, Tenn. †‡||	San Luis Obispo, Cal.
Milwaukee, Wis. †*||	Santa Fé, N. Mex.
Mobile, Ala. †*‡||	Savannah, Ga. †*‡||
Montgomery, Ala. ‡||	Shaw, Fort, Mont.
Montrose, Colo.	Shreveport, La. †‡||

Sill, Fort, Ind. T.	Totten, Fort, Dak.
Sitka, Alaska.	Valentine, Nebr. ||
Smithville, N. C. †*	Vicksburg, Miss. ‡ ‡ ||
Spokane Falls, Wash.	Walla Walla, Wash.
Springfield, Ill. ||	West Las Animas, Colo.
Stanton, Fort, N. Mex.	Wilmington, N. C. †* ‡ ||
Sully, Fort, Dak.	Winnemucca, Nev.
Tatoosh Island, Wash.	Yankton, Dak. ‡ ||
Thomas, Fort, Ariz.	Yuma, Ariz. ‡
Toledo, Ohio. †* ||	

STATIONS OF THE THIRD ORDER,
Taking one observation daily.

Ashland, Oreg.	Narragansett Pier, R. I.
Astoria, Oreg.*	Neah Bay, Wash.
Bowie, Fort, Ariz.	New River Inlet, N. C.
Cape Henlopen, Del.*	Ocean City, Md.
Cœur d'Alene, Fort, Idaho.	Phoenix, Ariz.
Cottage City, Mass.*	Pysht, Wash.
Durango, Colo.	Reno, Fort, Ind. T.
Edgartown, Mass.*	San Carlos Agency, Ariz.
Henrietta, Tex.	Spokane, Fort, Wash.
Klamath, Fort, Oreg.	Supply, Fort, Ind. T.
Lakeview, Oreg.	Verde, Fort, Ariz.
Laramie, Fort, Wyo.	Wash Woods, N. C.
Lava, N. Mex.	Watrous, N. Mex.
Linkville, Oreg.	Webster, Dak.
Marfa, Tex.	Willecox, Ariz.
Maricopa, Ariz.	Yates, Fort, Dak.
McDowell, Fort, Ariz.	

REPAIR STATIONS,

On the United States military telegraph lines, at which no observations are taken.

Ash Fork, Ariz.	Galpin, Mont.
Bly, Oreg.	Glendive, Mont.
Cantonment, Ind. T.	Lakota, Dak.
Carter, Wyo.	Parker's, Oreg.
Custer Station, Mont.	Robinson, Fort, Nebr.
Edinburg, Tex.	Santa Maria, Tex.

SPECIAL PRINTING STATION.

Logansport, Ind. ||

SPECIAL DISPLAY STATIONS.

Station receiving orders direct from Washington City.

Monroe, Fort, Va.

Stations receiving orders from Washington City (designating section affected) through the observer in charge of the section centre.

Mackinaw Section (Chicago, Illinois, centre).

Charlevoix, Mich.	Frankfort, Mich.
Cheboygan, Mich.	Petoskey, Mich.

Grand Haven Section (Chicago, Illinois, centre).

Ludington, Mich.	Pentwater, Mich.
Manistee, Mich.	Saint Joseph, Mich.
Montague, Mich.	South Haven, Mich.
Muskegon, Mich.	

Milwaukee Section (Milwaukee, Wisconsin, centre).

Kenosha, Wis.	Racine, Wis.
Manitowoc, Wis.	Sheboygan Wis.

Green Bay Section (Milwaukee, Wisconsin, centre).

Alnapee, Wis.	Menominee, Mich.
Kewaunee, Wis.	Sturgeon Bay, Wis.

Saginaw Bay Section (Detroit, Michigan, centre).

Bay City, Mich.	Sand Beach, Mich.
East Tawas, Mich.	

Erie Section (Erie, Pennsylvania, centre).

Ashtabula, Ohio.	Dunkirk, N. Y.
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Oswego Section (Oswego, New York, centre).

Cape Vincent, N. Y.	North Fair Haven, N. Y.
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Portland Section (Portland, Maine, centre).

Bath, Me.	Rockland, Me.
Boothbay, Me.	Southwest Harbor, Me.

Boston Section (Boston, Massachusetts, centre).

Gloucester, Mass.	Newburyport, Mass.
Marblehead, Mass.	Portsmouth, N. H.

Wood's Holl Section (Boston, Massachusetts, centre).

Bass River Light, Mass.	New Bedford, Mass.
Highland Light, Mass.	Provincetown, Mass.
Hyannis, Mass.	Wood's Holl, Mass.

Newport Section (New London, Connecticut, centre).

Bristol, R. I.	Newport, R. I.
Fall River, Mass.	Stonington, Conn.

Narragansett Section (Narragansett Pier, Rhode Island, centre).

Point Judith, R. I.

New Jersey Coast Section (Atlantic City, New Jersey, centre).

Barnegat City, N. J.

Savannah Section (Savannah, Georgia, centre).

Brunswick, Ga.	Tybee Island, Ga.
Port Royal, S. C.	

Jacksonville Section (Jacksonville, Florida, centre).

Fernandina, Fla.	Saint Augustine, Fla.
Fort George Island, Fla.	

The following-named stations repeat cautionary signal orders issued to the stations set opposite their respective names:

Apalachicola, Fla.....	Pensacola, Fla.
Cedar Tree Neck, Mass	Cottage City, Mass.
Charlotte, N. Y.....	Rochester, N. Y.
Chicago Water Crib.....	Chicago, Ill.
City Island, N. Y.....	New York City.
Morgan, Fort, Ala.....	Mobile, Ala.
New Haven Light, Conn.....	New Haven, Conn.
New River Inlet, N. C.....	Fort Macon, N. C.
Port Ends, La.....	New Orleans, La.
Sand Key Light, Fla.....	Key West, Fla.
Sunkaty Head Light, Mass.....	Nantucket, Mass.

Milwaukee, Wisconsin, notifies, by telegraph, the postmasters at Ashland, Wisconsin, and Houghton, Michigan, of all cautionary signal orders for Duluth, Minnesota, and Marquette, Michigan.

Cleveland, Ohio, notifies, by telegraph, Mr. E. D. Foskett, Lorain, Ohio, of all cautionary signal orders for Cleveland.

Corpus Christi, Texas, notifies Brownsville, Texas, of all cautionary signal orders for Corpus Christi.

SPECIAL RIVER STATIONS.

Observations of the stage of water in the river are taken daily.

Cairo, Illinois (centre).	
Evansville, Ind.	Mount Carmel, Ill.
Grand Tower, Ill.	Paducah, Ky.
Johnsonville, Tenn.	Vincennes, Ind.
Charleston, South Carolina (centre).	
Mount Holly, N. C.	
Chattanooga, Tennessee (centre).	
Charleston, Tenn.	Leadvale, Tenn.
Clinton, Tenn.	Loudon, Tenn.
Decatur, Ala.	Stawberry Plains, Tenn.
Kingston, Tenn.	
La Crosse, Wisconsin (centre).	
Wabasha, Minn.	
Leavenworth, Kansas (centre).	
Plattsmouth, Nebr.	Saint Joseph, Mo.
Little Rock, Arkansas (centre).	
Dardanelle, Ark.	
Nashville, Tennessee (centre).	
Burnside, Ky.	Carthage, Tenn.
New Orleans, Louisiana (centre).	
Alexandria, La.	Girard, La.
Bayou Sara, La.	Monroe, La.
Camden, Ark.	West Melville, La.
Delhi, La.	
Pittsburg, Pennsylvania (centre).	
Brookville, Pa.	New Geneva, Pa.
Clarion, Pa.	Oil City, Pa.
Confluence, Pa.	Parker's Landing, Pa.
Freeport, Pa.	Rowlesburg, W. Va.
Johnstown, Pa.	Saltsburg, Pa.
Lock No. 4, Pa.	Warren, Pa.
Mahoning, Pa.	Weston, W. Va.
Marietta, Ohio.	Wheeling, W. Va.
Morgantown, W. Va.	

	Portland, Oregon (centre).
Albany, Oreg.	Umatilla, Oreg.
Eugene City, Oreg.	
	Sacramento, California (centre).
Colusa, Cal.	Marysville, Cal.
Folsom City, Cal.	Oroville, Cal.
	Saint Louis, Missouri (centre).
Beardstown, Ill.	Lexington, Mo.
Boonville, Mo.	Louisiana, Mo.
Hermann, Mo.	Peoria, Ill.
Jerome, Mo.	Warsaw, Ill.
Kansas City, Mo.	
	Shreveport, Louisiana (centre).
Coushatta Chute, La.	Fulton, Ark.
	Vicksburg, Mississippi (centre).
Arkansas City, Ark.	Yazoo City, Miss.
Newport, Ark.	
	Washington City (centre).
Harper's Ferry, W. Va.	Le Claire, Iowa.
Helena, Ark.	Muscatine, Iowa.

SPECIAL COTTON-REGION STATIONS AND CENTRES.

One observation made daily.

	Atlanta, Georgia (centre).
Anderson, S. C.	Macon, Ga.
Cartersville, Ga.	Newnan, Ga.
Columbus, Ga.	Spartanburg, S. C.
Gainesville, Ga.	Toccoa, Ga.
Greenville, S. C.	West Point, Ga.
Griffin, Ga.	
	Augusta, Georgia (centre).
Allendale, S. C.	Columbia, S. C.
Athens, Ga.	Greenwood, S. C.
Batesburg, S. C.	Union Point, Ga.
Blackville, S. C.	Washington, Ga.
Camak, Ga.	Waynesborough, Ga.
Chester, S. C.	

Charleston, South Carolina (centre).

Branchville, S. C.	Saint George's, S. C.
Hardeeville, S. C.	Saint Matthew's, S. C.
Jacksonborough, S. C.	Yemassee, S. C.
Kingstree, S. C.	

Galveston, Texas (centre).

Austin, Tex.	Huntsville, Tex.
Belton, Tex.	Longview, Tex.
Brenham, Tex.	Luling, Tex.
Columbia, Tex.	Orange, Tex.
Corsicana, Tex.	Sour Lake, Tex.
Cuero, Tex.	Tyler, Tex.
Dallas, Tex.	Waco, Tex.
Hearne, Tex.	Weatherford, Tex.
Houston, Tex.	Weimar, Tex.

Little Rock, Arkansas (centre).

Arkansas City, Ark.	Monticello, Ark.
Brinkley, Ark.	Newport, Ark.
Devall's Bluff, Ark.	Paris, Tex.
Forrest City, Ark.	Pine Bluff, Ark.
Helena, Ark.	Prescott, Ark.
Kensett, Ark.	Russellville, Ark.
Magnolia, Ark.	Texarkana, Ark.
Malvern, Ark.	

Memphis, Tennessee (centre).

Arlington, Tenn.	Grenada, Miss.
Batesville, Miss.	Hernando, Miss.
Bolivar, Tenn.	Holly Springs, Miss.
Brownsville, Tenn.	Milan, Tenn.
Corinth, Miss.	Oxford, Miss.
Covington, Tenn.	Paris, Tenn.
Decatur, Ala.	Scottsborough, Ala.
Dyersburg, Tenn.	Tuscumbia, Ala.
Grand Junction, Tenn.	

Mobile, Alabama (centre).

Aberdeen, Miss.	Macon, Miss.
Columbus, Miss.	Meridian, Miss.
Evergreen, Ala.	Okolona, Miss.
Livingston, Ala.	Waynesborough, Miss.

Montgomery, Alabama (centre).

Birmingham, Ala.	Marion, Ala.
Calera, Ala.	Opelika, Ala.
Eufaula, Ala.	Pine Apple, Ala.
Fort Deposit, Ala.	Selma, Ala.
Greenville, Ala.	

New Orleans, Louisiana (centre).

Alexandria, La.	Lafayette, La.
Amité City, La.	Minden, La.
Brookhaven, Miss.	Natchez, Miss.
Cheucyville, La.	Natchitoches, La.
Coushatta Chute, La.	Opelousas, La.
Hazlehurst, Miss.	Port Gibson, Miss.

Savannah, Georgia (centre).

Albany, Ga.	Live Oak, Fla.
Allapaha, Ga.	Millen, Ga.
Bainbridge, Ga.	Quitman, Ga.
Eastman, Ga.	Smithville, Ga.
Fernandina, Fla.* <i>a</i>	Thomasville, Ga.
Fort Guines, Ga.	Waldo, Fla. <i>a</i>
Jessup, Ga.	Way Cross, Ga.

Vicksburg, Mississippi (centre).

Edwards, Miss.	Lake, Miss.
Jackson, Miss.	Monroe, La.

Wilmington, North Carolina (centre).

Cheraw, S. C.	Raleigh, N. C.
Florence, S. C.	Salisbury, N. C.
Goldsbrough, N. C.	Wadesborough, N. C.
Lamberton, N. C.	Weldon, N. C.
New-Berne, N. C.	

REFERENCE MARKS.

* Displays cautionary signals.

† Takes observations of temperature of the water in river or harbor daily.

‡ Takes observations of the stage of the water in the river daily.

§ Takes cotton-region observation daily.

|| Displays cold-wave signal.

a These reports are consolidated at Cedar Keys and telegraphed to Savannah.

Signal Office,

WAR DEPARTMENT.

CIRCULAR }
No. 10. }

Washington, August 25, 1886.

The table herewith, showing the relative accuracy attained in the meteorological work by observers at the stations of the Signal Service, U. S. Army, is published for the information of all concerned.

The result of the examination of the meteorological work of each man during the periods covered, as published herein, has been noted on his official record at this office, for future reference in determining his standing as a competent observer.

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER :

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

Statement showing the number of errors found in station work examined at this office for the six months ending June 30, 1886.

Name.	Rank.	Number of months.	Forms 101 and 113 a.	Other station work.	Station.
Albrecht, L. H.	Sgt.	4	32	0	Fort Davis.
Applegate, Samuel	Sgt.	3	5	0	Unalashka.
Bailey, Wayland	Pvt.			1	Jacksonville.
Bailey, W. O.	Pvt.	6	76	6	Knoxville.
Baldwin, H. McP.	Pvt.			3	Detroit.
Barnes, J. O.	Sgt.	8	9	3	Albany.
Barry, J. A.	Sgt.	4	53	2	Baltimore.
Barwick, J. A.	Sgt.	6	9	8	Charlotte.
Bauer, J. W.	Pvt.			2	Sacramento.
Beall, S. W.	Sgt.	6	29	3	Mount Washington.
Beals, E. A.	Sgt.	6	6	8	Atlanta.
Beck, W. C.	Pvt.			4	Chattanooga.
Belford, Frederick	Sgt.	6	0	9	Philadelphia.
Bell, William	Sgt.	6	32	0	El Paso.
Blandford, H. S.	Sgt.	6	67	1	Port Angeles.
Blundon, B. A.	Sgt.	6	20	0	Walla Walla.
Boyer, H. B.	Pvt.	6	55	3	Atlantic City.
Boynton, H. R.	Pvt.	6	95	2	Key West.
Bozzell, C. L.	Pvt.	6	62	1	Fort Bridger.
Brace, E. R.	Sgt.	6	21	5	Cairo.
Brandenburg, E. C.	Pvt.			6	Duluth.
Brandenburg, F. H.	Sgt.	6	17	1	Cincinnati.
Brown, A. W.	Pvt.	2	33	3	West Las Animas.
Buell, Allen	Sgt.	5	7	1	Dubuque.
Burke, Frank	Sgt.	2		0	Chicago.
Burnley, C. D.	Pvt.	6	79	4	Columbus.
Butler, C. E.	Pvt.	6	41	1	Louisville.
Byram, J. W.	Sgt.	6	33	3	Valentine.
Callill, P. J.	Sgt.	6	23	1	Tatoosh Island.
Call, L. W.	Pvt.	2	3	0	Vicksburg.
Carden, G. A.	Pvt.	2	26	0	Concordia.
Carr, D. J.	Sgt.	6	18	0	Lamar.
Chaffee, F. P.	Sgt.	6	6	1	Chicago.
Chappel, G. M.	Cpl.	2	14	1	Lamar.
Chappel, V. P.	Cpl.	3	18	6	Mount Washington.
Chase, E. D.	Pvt.	2	17	1	Smithville.
Cline, I. M.	Pvt.	6	16	3	Mackinaw City.
Coburn, F. S.	Pvt.			0	Poplar River.
Cole, O. B.	Sgt.	6	65	1	Brownsville.
Coleman, D. F.	Pvt.			8	Galveston.
Collins, T. S.	Sgt.	6	85	5	Arlene.
Conger, N. B.	Sgt.	6	11	3	Baltimore.
Connor, Patrick	Sgt.	3	3	4	Boston.
Connell, Maurice	Pvt.			3	Pittsburg.
Conrad, F. W.	Sgt.	6	12	0	Montrose.
				1	Detroit.
				0	Fort Grant.
				3	Los Angeles.
				3	Des Moines.

Statement showing the number of errors, &c.—Continued.

Name.	Rank.	Number of months.	Forms 101 and 113 a.	Other station work.	Station.
Cox, H. J.	Pvt.			28	Boston.
Craig, John	Sgt.	6	9	28	Springfield.
Crane, A. B.	Cpl.	5	27	33	Chincoteague.
Crawford, James	Pvt.	1	9	22	New Orleans.
Crossman, J. D.	Pvt.			2	Cairo.
Cunningham, C. K.	Pvt.	6	36	0	Fort Shaw.
Curley, H. H.	Pvt.			4	Boston.
Cuthbertson, David.	Sgt.	6	24	0	Buffalo.
Dailey, W. J.	Cpl.	6	25	5	Fort Custer.
Daly, William.	Pvt.	6	58	4	Fort Macon.
David, W. W.	Pvt.			1	Savannah.
Davis, A. J.	Pvt.			4	Cleveland.
Davis, William	Sgt.	6	30	1	Buffalo.
Day, E. W.	Pvt.			2	Cape Henry.
Delano, W. S.	Pvt.	5	16	1	Pittsburg.
Dennin, E. R.	Sgt.	6	4	10	Shreveport.
Dent, W. W.	Cpl.			0	Yuma.
Dey, L. M.	Sgt.	3	38	1	Erie.
Dickens, C. F.	Pvt.	6	42	1	Marquette.
Dilley, C. B.	Pvt.	6	14	0	Philadelphia.
Dunn, E. B.	Pvt.	1	32	1	Fort Sill.
Dunne, Lawrence	Sgt.	1	0	2	Chicago.
Earnest, J. P.	Sgt.	6	24	0	New York City.
Edmondson, W. M.	Pvt.			3	Montgomery.
Eichelberger, W. W.	Pvt.	6	7	3	Vicksburg.
Emery, E. H.	Sgt.	5	16	6	Port Huron.
Emery, S. C.	Pvt.			0	New York City.
England, W. W.	Sgt.	5	26	2	Chattanooga.
Evans, E. A.	Cpl.			8	Savannah.
Fallon, W. H.	Sgt.	4	35	3	Louisville.
Farnell, D. N.	Pvt.	2	4	2	Buffalo.
Felger, G. W.	Pvt.	6	17	2	Saint Vincent.
Fickett, F. W.	Pvt.	6	93	1	Saint Vincent.
Fisher, David	Sgt.	6	10	0	Wilmington.
Fitzgerald, John	Sgt.	6	7	7	Rio Grande City.
Fitzgerald, J. J.	Sgt.	6	101	0	Baltimore.
Fitzmaurice, P. H.	Pvt.	6	74	3	Portland, Oreg.
Flannery, D. T.	Sgt.	6	4	0	Augusta.
Ford, H. W.	Pvt.			15	North Platte.
Franklin, G. E.	Sgt.	4	66	8	Alpena.
Fraser, A. E.	Pvt.	6	17	2	Kitty Hawk.
French, E. W.	Pvt.	1	16	3	Memphis.
Fuller, W. D.	Pvt.			1	Saint Louis.
Fullerton, E. G.	Pvt.	3	32	0	Fort Totten.
Gardner, I. G.	Pvt.	1	3	1	Los Angeles.
Garriott, E. B.	Sgt.	4	29	7	Toledo.
				6	Nashville.
				0	Fort Grant.
				0	Prescott.
				4	Denver.
				2	Salt Lake City.
				1	Fort Benton.
				11	Grand Haven.
				0	Louisville.

Statement showing the number of errors, &c.—Continued.

Name.	Rank.	Number of months.	Forms 101 and 113 a.	Other station work.	Station.
Gibson, Thomas	Pvt	3	43	0	San Luis Obispo.
Gilligan, J. J.	Sgt	6	64	7	Denver.
Glass, E. J.	Pvt. }	2	10	1	Fort Totten.
Glenn, S. W.	Sgt	6	10	2	Portland, Oreg.
Gordon, Nelson	Sgt	6	6	0	Huron.
Gorgas, C. S.	Pvt	6	6	1	San Francisco.
Goswisch, F. Z.	Sgt	6	45	7	Cape Henry.
Goulding, B. L.	Sgt	4	10	0	Kookuk.
Graham, C. C.	Pvt			0	Little Rock.
Graham, Richard	Cpl. }			5	Milwaukee.
Grant, R. Q.	Pvt	1	20	4	Nashville.
Greene, W. H.	Pvt	6	5	0	Savannah.
Grunow, D. C.	Pvt			0	Fort Stanton.
Hall, Harry	Sgt	6	49	7	Rochester.
Haney, S. A.	Pvt			2	Pittsburg.
Hanner, E. A.	Pvt			0	Pike's Peak.
Harding, R. M.	Pvt			1	Saint Louis.
Harrison, T. B.	Sgt	5	0	4	Charleston.
Harrod, F. L.	Pvt			8	Philadelphia.
Hass-Hagen, George	Sgt	6	15	0	Washington City.
Healy, John	Sgt	2	50	9	Cleveland.
Hearne, M. L.	Sgt	4	21	2	Fort Smith.
Heiskell, H. L.	Sgt	1	0	1	Lamar.
Hemenway, J. F.	Pvt	6	44	0	Portland, Oreg.
Herman, Meyer	Sgt	5	4	0	Washington City.
Hersey, H. B.	Pvt	6	20	4	Spokane Falls.
Hill, J. E.	Pvt	1	16	0	New Orleans.
Hines, I. B.	Pvt	6	55	8	Deadwood.
Hinman, R. E.	Pvt			4	Shreveport.
Hobbs, E. C.	Pvt	2	27	1	Block Island.
Hough, B. F.	Sgt	6	19	5	New York City.
Hutchinson, P. M.	Pvt. }	3	42	6	Little Rock.
Jenkins, P. T.	Sgt	6	20	4	Sandusky.
Jennings, T. B.	Sgt	5	7	5	Marquette.
Jesunofsky, L. N.	Sgt	6	20	1	Erie.
Jones, E. P.	Pvt. }			0	Cincinnati.
Karna, J. D.	Pvt	6	73	3	Toledo.
Kenealy, James	Sgt	6	10	0	Nashville.
Kinney, B. A.	Pvt	6	37	3	Little Rock.
Kitchel, C. N.	Sgt	5	30	1	Portland, Mo.
Knabe, H. F.	Cpl	5	4	2	Fort Canby.
Knopf, G. W.	Pvt			0	Bolsé City.
Kortz, W. A.	Pvt	1	22	2	Portland, Me.
Kuntz, T. A.	Pvt			13	Moorhead.
Lackey, J. J.	Pvt			0	Prescott.
Lanouette, J. E.	Sgt	0	11	6	Pittsburg.
Lawton, G. E.	Pvt. }			1	Saint Louis.
Leavitt, A. P.	Sgt	6	38	1	Norfolk.
Lenoir, B. O.	Sgt	6	15	3	Vicksburg.
				3	Dodge City.
				1	Charlotte.
				2	Nashville.
				0	Cape Mendocino.
				2	Helena.

Statement showing the number of errors, &c.—Continued.

Name.	Rank.	Number of months.	Forms 101 and 113 c.	Other station work.	Station.
Lewis, R. E.....	Pvt.....			2	Philadelphia.
Line, William.....	Sgt.....	6	21	5	Cleveland.
Ling, C. W.....	Pvt.....	4	57	12	Chicago.
Linu, F. E.....	Pvt.....			0	Poplar River.
Linsley, J. G.....	Sgt.....	6	25	12	Chicago.
Lynch, J. G.....	Sgt.....	6	41	12	Oswego.
Lyons, P. F.....	Sgt.....	6	13	2	New London.
MacInerney, E. O'C.....	Sgt.....	4	13	4	Saint Paul.
Maphet, Edward.....	Pvt.....			1	Galveston.
Marbury, J. B.....	Sgt.....	3	8	3	Detroit.
Martin, R. R.....	Sgt.....	6	18	1	Salt Lake City.
Mathews, A. L.....	Pvt.....			7	Davenport.
Maxwell, W. D.....	Pvt.....			2	Helena.
Mayers, W. S.....	Pvt.....	6	37	6	Memphis.
McGann, E. W.....	Sgt.....	6	31	2	Fort Apache.
McGinnis, D. R.....	Pvt.....			6	Rochester.
McGlone, John.....	Sgt.....	3	19	2	Saint Paul.
McGovern, Edgar.....	Sgt.....	6	13	1	Brownsville.
McLean, J. J.....	Sgt.....	6	22	1	San Antonio.
McRae, A. L.....	Sgt.....	6	63	6	Olympia.
Miller, F. B.....	Pvt.....	5	6	0	Sitka.
Miller, W. S.....	Pvt.....			3	Columbus.
Mitchell, A. J.....	Pvt.....			6	Chicago.
Moffette, Edward.....	Cpl.....			1	Dodge City.
Moulder, Thomas.....	Pvt.....	3	41	4	Smithville.
Mueller, J. E.....	Sgt.....	6	58	2	Philadelphia.
Murphy, D. C.....	Sgt.....	6	85	0	Fort Thomas.
Nanry, J. J.....	Sgt.....	4	23	7	Grand Haven.
Nichols, H. A.....	Pvt.....	2	14	4	Eastport.
Notson, D. B.....	Pvt.....	6	123	1	Roseburg.
O'Donoghue, Denis.....	Sgt.....	2	10	7	Memphis.
Olds, W. J.....	Pvt.....	1	24	0	Fort Davis.
Olney, E. B.....	Pvt.....			5	Cheyenne.
Pague, B. S.....	Pvt.....	2	0	4	Charlotte.
Parker, Orin.....	Sgt.....	6	29	11	New London.
Passalunig, J. F.....	Pvt.....	1	3	2	Louisville.
Patterson, T. J.....	Pvt.....	6	66	1	Saint Louis.
Paxton, R. H.....	Sgt.....			2	San Francisco.
Pennywitt, Henry.....	Sgt.....	6	30	0	Roseburg.
Perry, M. H.....	Sgt.....	6	73	0	Greencastle.
Philabaum, E. M.....	Pvt.....	1	18	0	Sandy Hook.
Phillips, W. F. R.....	Pvt.....			0	Fort Bidwell.
Piercy, J. C.....	Pvt.....			1	Denver.
Pindell, L. M.....	Sgt.....	5	3	0	Saunder.
Pollak, Alexander.....	Sgt.....	6	19	9	Palestine.
Pritchard, Appleton.....	Sgt.....	6	39	1	El Paso.
Pulliam, R. H.....	Pvt.....			1	Kitty Hawk.
Ray, W. H.....	Sgt.....	6	26	3	Sandusky.
Read, C. A.....	Cpl.....	6	10	1	Escamaba.
				2	Omaha.
				0	Mobile.
				1	Oswego.
				0	La Crosse.
				0	Winnemucca.

Statement showing the number of errors, &c.—Continued.

Name.	Rank.	Number of months.	Forms 101 and 113c.	Other station work.	Station.
Reed, I. A.....	Sgt.....	6	25	5	Indianola.
Rhode, S. W.....	Sgt.....	6	5	1	Milwaukee.
Richardson, W. F.....	Pvt.....	11		11	Eastport.
Richey, S. R.....	Pvt.....	6	2	12	Nashville.
Ridgway, Frank.....	Sgt.....	5	173	0	Fort Sully.
Robinson, W. F.....	Pvt.....			10	Sandy Hook.
Rush, S. R.....	Pvt.....			12	Boston.
Ryker, J. N.....	Pvt.....	1	1	5	Omaha.
Salisbury, G. N.....	Pvt.....	1		1	Saint Louis.
Schley, T. F.....	Cpl.....	1	3	2	Bismarck.
Schneider, August.....	Cpl.....	6	105	12	S. int Paul.
Sebastian, R. L.....	Pvt.....	1	4	0	Escanaba.
Shearer, C. G.....	Pvt.....	1	0	8	Lynchburg.
Sherman, J. H.....	Sgt.....	6	15	0	Fort Buford.
Sherry, J. P.....	Sgt.....	6	23	0	Tatoosh Island.
Sherwood, A. T.....	Sgt.....	5	39	3	Red Bluff.
Sims, A. F.....	Pvt.....	1	9	1	Chincoteague.
Slaughter, J. P.....	Pvt.....	0	37	2	New Haven.
Smith, J. H.....	Sgt.....	6	68	0	Norfolk.
Smith, J. W.....	Sgt.....	6	43	2	Bismarck.
Smith, W. E.....	Pvt.....	0	60	0	Fort Thomas.
Sprigg, J. C., jr.....	Pvt.....	0	60	1	Leavenworth.
Stewart, Charles.....	Pvt.....	6	13	4	Dodge City.
Stewart, O. D.....	Sgt.....	1	12	1	Augusta.
Strong, C. M.....	Pvt.....	6	37	3	Fort Stockton.
Stuller, C. H.....	Pvt.....	0	6	12	Charleston.
Sutton, R. L.....	Pvt.....	0	6	1	Jacksonville.
Tarr, L. M.....	Pvt.....	0	61	3	Athlanta.
Thomas, W. W.....	Sgt.....	0	38	3	San Diego.
Thompson, E. H.....	Sgt.....	6	10	1	San Francisco.
Trotter, C. F.....	Pvt.....	3	13	1	Pittsburg.
Turton, J. B.....	Sgt.....	0	6	1	Columbus.
Twaddle, W. V.....	Pvt.....	0	6	6	Fort Elliott.
Van Harlingen, E. M.....	Pvt.....	0	6	1	Albany.
Vining, G. H.....	Pvt.....	3	4	7	Mobile.
von Herrmann, C. F.....	Pvt.....	0	6	0	Cedar Keys.
Wagg, A. M.....	Pvt.....	0	38	5	Yankton.
Walz, F. J.....	Pvt.....	0	10	2	Fort Assinaboine.
Wappenhans, C. F. R.....	Sgt.....	6	25	0	Fort Benton.
Weber, G. A.....	Sgt.....	5	31	0	Santa Fe.
Welsh, L. A.....	Sgt.....	6	37	4	New Orleans.
White, A. L.....	Pvt.....	6	34	2	Athlanta.
Whitfield, A. F.....	Pvt.....	2	12	1	Key West.
Whitmeyer, J. L.....	Pvt.....	6	10	1	San Antonio.
Widmeyer, W. L.....	Cpl.....	6	10	3	Montgomery.
Williams, A. L.....	Pvt.....	0	6	6	Port Huron.
		6	25	2	Indianapolis.
		5	31	1	Saint Louis.
		6	37	3	Leavenworth.
		6	34	2	Hatteras.
		2	12	0	Pensacola.
		6	10	4	Fort Thomas.
		6	10	4	Pensacola.
		6	10	4	Baltimore.

Statement showing the number of errors, &c.—Continued.

Name.	Rank.	Number of months.	Forms 101 and 113 <i>a</i> .	Other station work.	Station.
Williams, F. T	Pvt			3	Augusta.
Williams, J. R	Sgt	2	4	1	Red Bluff.
Wood, Peter	Sgt	6	6	3	Erie.
Wright, J. McN	Pvt			2	Norfolk.
Young, J. H	Pvt	6	56	0	Fort Maginnis.
Total			5,220		
Number of forms examined			557		
Average number of errors per form			6.1		

CIRCULAR }
No. 11. }

Signal Office,
WAR DEPARTMENT,
Washington, September 1, 1886.

The tables herewith show for August, 1886 :

1. Changes in classes and work of stations.
2. Changes in stations and duties of officers.
3. Changes in stations and duties of enlisted men.
4. Orders revoked, changing stations and duties of enlisted men.
5. Promotions and casualties.

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER :

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

1. List of changes in classes and work of stations.

Station.	Class.		Instruction.		Remarks.
	From—	To—	No.	Date.	
Appalachicola, Fla.....	.....	Special display	42	Aug. 10	Established; to repeat Pensacola signals.
Ascora, Oreg.....	.....	Special display	40	4	Established; to display cautionary signals.
Basin River Light, Mass.....	.....	Special display	45	27	Discontinued; to date September 16.
Bly, Oreg.....	Special display .....	.....	40	4	Established.
Chatham, Mass.....	.....	Repair.....	45	27	Established; to date September 15.
Hull, Mass.....	.....	Special display	45	27	Established; to date September 15.
Olympia, Wash. T.....	Special display .....	.....	40	4	Discontinued.

2. List of changes in stations and duties of officers.

Name.	Rank.	From—	To—	Order—		Remarks.
				No.	Date.	
Thompson, Richard E.....	1st Lt., 6th Inf.	Fort Myer, Va.....	Washington City.....	*184	Aug 10	For duty.
Swift, James A.....	2d Lieut., S. C.	Fort Myer, Va.....	Washington City.....	184	10	For duty.
Weber, Julius H.....	2d Lieut., S. C.	Fort Myer, Va.....	Wood's Holl, Mass ..	184	10	In charge, Wood's Holl-Nan-
Mitchell, James.....	2d Lieut., S. C.	Fort Myer, Va.....	Washington City.....	179	4	tucket telegraph lines.
Ellie, Frank W.....	2d Lieut., S. C.	Fort Myer, Va.....	Washington City.....	184	10	For duty.

* Adjutant General's Office.

3. Last of changes in stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Applegate, Samuel	Sgt.	San Francisco, Cal.	Fort Reno, Ind. T.	86	Aug. 25	In charge of station.
Bail, Hector J.	Pvt.	Fort Myer, Va.	Philadelphia, Pa.	72	6	Assistant on station.
Barnes, John O.	Sgt.	Albany, N. Y.	New York City	87	28	Special duty; afterwards to return to Albany.
Barber, John T.	Pvt.	Fort Grant, Ariz.	Washington City	73	6	To await orders, pending discharge.
Bender, Louis E.	Pvt.	Fort Myer, Va.	Washington City	74	7	For duty.
Berrill, James F.	Pvt.	Fort Myer, Va.	Washington City	74	7	For duty.
Blundon, Benjamin A.	Sgt.	Atlantic City, N. J.	Nantucket, Mass.	79	14	In charge of station.
Boylan, Robert J.	Pvt.	Fort Myer, Va.	Albany, N. Y.	72	6	Assistant on station.
Bozzell, Charles L.	Pvt.	Cairo, Ill.	Columbia, Ill.	87	26	Special duty; afterwards to return to Cairo.
Brandenburg, Edwin C.	Pvt.	Cincinnati, Ohio	Saint Paul, Minn.	80	16	Assistant to Prof. Wm. W. Payne.
Brown, Daniel H.	Pvt.	Fort Myer, Va.	Chicago, Ill.	72	6	Assistant on station.
Buell, Allen	Sgt.	Chicago, Ill.	Newark, Ohio	87	26	Special duty; afterwards to return to Chicago.
Butler, William E.	Pvt.	Fort Myer, Va.	Washington City	74	7	For duty.
Cahill, Patrick J.	Sgt.	Concordia, Kans.	Atlantic City, N. J.	73	14	In charge of station.
Clarke, Frederick H.	Sgt.	San Francisco, Cal.	Fort Apache, Ariz.	86	26	In charge of station.
Clements, George E.	Pvt.	Fort Myer, Va.	Washington City	73	7	For duty.
Clergy, John H.	Pvt.	Fort Myer, Va.	Milwaukee, Wis.	72	6	Assistant on station.
Clugston, Jerome C.	Pvt.	Fort Myer, Va.	Washington City	74	7	For duty.
Cole, Otto B.	Sgt.	Boston, Mass.	North Belerica, Mass.	87	26	Special duty; afterwards to return to Boston.
Conger, Norman B.	Sgt.	Detroit, Mich.	Wayne, Mich.	87	26	Special duty; afterwards to return to Detroit.
Curren, William E.	Cpl.	Fort Myer, Va.	Washington City	77	12	For temporary duty; to date Aug. 7.
Curley, Henry H.	Pvt.	Boston, Mass.	Cottage City, Mass.	71	3	In charge of station.
Davis, Charles H.	Pvt.	Fort Myer, Va.	Fort McDowell, Ariz.	72	6	In charge of station.
Dechard, George W.	Pvt.	Fort Myer, Va.	Washington City	74	7	For duty.
Dey, Luther M.	Sgt.	Philadelphia, Pa.	Atlantic City, N. J.	87	26	Special duty; afterwards to return to Philadelphia.
Dick, Harvey B.	Pvt.	Fort Myer, Va.	Washington City	74	7	For duty.

3. List of changes in stations and duties of enlisted men—Continued.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Mayers, William S.....	Pvt.	Fort Apache, Ariz.....	Buffalo, N. Y.....	86	Aug. 25	To await orders, pending discharge.
McDermott, John L.....	Pvt.	Fort Myer, Va.....	Green Bay, Wis.....	72	5	Assistant on station.
McGauran, Michael.....	Pvt.	Milwaukee, Wis.....	Chicago, Ill.....	72	5	To open station.
McGauran, Michael.....	Pvt.	Milwaukee, Wis.....	Chicago, Ill.....	81	18	For discharge.
Meekins, Edward N.....	Pvt.	Ocean City, Md.....	Chincoteague, Va.....	83	21	For temporary duty as assistant.
Meister, Henry F.....	Pvt.	Fort Myer, Va.....	Washington City.....	74	7	For duty.
Mitchell, Alexander J.....	Pvt.	Fort Myer, Va.....	Washington City.....	79	14	In charge of station.
Mitchell, Alexander J.....	Pvt.	Smithville, N. C.....	Atlantic City, N. J.....	79	14	Assistant on station.
Moloney, Patrick J.....	Pvt.	Atlantic City, N. J.....	Washington City.....	77	12	For temporary duty; to date Aug. 10.
Morrison, Millard F.....	Pvt.	Fort Myer, Va.....	Washington City.....	77	12	For temporary duty; to date Aug. 7.
Mueller, Joseph E.....	Sgt.	Fort Myer, Va.....	Pentwater, Mich.....	87	26	Special duty; afterwards to return to Grand Haven.
O'Brien, Thomas J.....	Sgt.	Fort Myer, Va.....	Washington City.....	74	7	For duty.
O'Connor, John J.....	Pvt.	Fort Reno, Ind. T.....	New London, Conn.....	86	25	To await orders, pending discharge.
Olde, William J.....	Pvt.	Fort Myer, Va.....	Washington City.....	76	11	In charge of station.
Parker, John D.....	Pvt.	Fort Myer, Va.....	Washington City.....	74	7	For duty.
Patton, Rutherford H.....	Sgt.	Fort Myer, Va.....	Fort Sill, Ind. T.....	74	7	For duty.
Penrod, George H.....	Cpl.	Denver, Colo.....	Nantucket, Mass.....	80	16	In charge of station.
Penrod, George H.....	Cpl.	Edgartown, Mass.....	Nantucket, Mass.....	89	31	For temporary duty.
Penrod, Hiram J.....	Cpl.	Nantucket, Mass.....	Edgartown, Mass.....	89	31	In charge of station.
Penrod, Hiram J.....	Sgt.	New York City.....	Perth Amboy, N. J.....	87	26	Special duty; afterwards to return to New York City.
Ramsay, John H.....	Pvt.	Fort Macon, N. C.....	Fort Monroe, Va.....	73	6	For discharge.
Ramsay, John P.....	Pvt.	Pike's Peak, Colo.....	Fort Monroe, Va.....	73	6	In charge of station.
Ravencroft, Elbridge M.....	Pvt.	Washington City.....	Saint Louis, Mo.....	71	3	Assistant on station.
Rhode, Samuel W.....	Sgt.	Milwaukee, Wis.....	Sheboygan, Wis.....	85	24	Special duty; afterwards to return to Milwaukee.
Richardson, Herbert W.....	Pvt.	Fort Myer, Va.....	Washington City.....	74	7	For duty.
Sullivan, George N.....	Pvt.	Saint Paul, Minn.....	Cincinnati, Ohio.....	80	16	Assistant on station.
Sherier, Julius M.....	Pvt.	Fort Myer, Va.....	Washington City.....	74	7	For duty.
Smith, James H.....	Sgt.	Charleston, S. C.....	Hardeeville, S. C.....	74	7	Special duty; afterwards to return to Charleston.

Dickens, Charles F.	Pvt.	Fort Sill, Ind. T.	86	25	To await orders, pending discharge.
Dilley, Charles B.	Pvt.	Moorhead, Minn.	73	6	For discharge.
Doster, Samuel L.	Pvt.	Hatteras, N. C.	86	25	In charge of station.
Eichelberger, W. W.	Sgt.	Portland, Me.	86	25	Special duty; afterwards to return to Portland.
Ellenberger, Cyrus	Pvt.	Fort Myer, Va.	72	6	Assistant on station.
Farrell, Simon J.	Pvt.	Fort Myer, Va.	74	7	For duty.
Feather, David D.	Pvt.	Fort Myer, Va.	72	5	In charge of station.
Felger, George W.	Sgt.	Baltimore, Md.	87	26	Special duty; afterwards to return to Baltimore.
Flannery, David T.	Sgt.	Memphis, Tenn.	87	26	Special duty; afterwards to return to Memphis.
Foley, James	Pvt.	Fort Myer, Va.	77	12	For temporary duty; to date Aug. 10.
Fulmer, William D.	Pvt.	Salt Lake City, Utah	71	3	Assistant on station.
Goulding, Benjamin L.	Sgt.	Little Rock, Ark.	87	26	Special duty; afterwards to return to Little Rock.
Gray, James J.	Pvt.	Fort Myer, Va.	72	5	Assistant on station.
Hall, Harry	Sgt.	Pike's Peak, Colo.	73	6	For discharge.
Hardinge, Robert M.	Pvt.	Philadelphia, Pa.	72	5	Assistant on station.
Hilbus, Robert E.	Pvt.	Fort Myer, Va.	77	12	For temporary duty; to date Aug. 10.
Howell, Edgar T.	Pvt.	Washington City	84	23	Assistant on station.
Howell, Edgar T.	Pvt.	Pittsburg, Pa.	74	7	For duty.
Jenkins, Presley T.	Sgt.	Fort Myer, Va.	87	26	Special duty; afterwards to return to Cincinnati.
Jeanofsky, Louis N.	Sgt.	Cincinnati, Ohio	87	26	Special duty; afterwards to return to Cincinnati.
Jolliffe, Thomas Page	Pvt.	Nashville, Tenn.	77	12	For temporary duty; to date Aug. 10.
Kerkam, Robert E.	Sgt.	Fort Myer, Va.	88	28	Special duty.
Kerne, William T.	Pvt.	Washington City	74	7	For duty.
Kitchel, Charles N.	Pvt.	Washington City	71	3	For clerical duty.
Kitchel, Charles N.	Pvt.	Green Bay, Wis.	76	11	For clerical duty.
Knahe, Henry F.	Cpl.	Washington City	73	6	To open station.
Kneace, George W.	Pvt.	Prescott, Ariz.	72	5	In charge of station.
Korte, William A.	Pvt.	Buffalo, N. Y.	71	3	To await orders, pending discharge.
Lazenby, Richard O.	Pvt.	Salt Lake City, Utah	74	7	In charge of station.
Line, William	Sgt.	Fort Myer, Va.	87	26	Special duty; afterwards to return to Cleveland.
Lynch, John G.	Sgt.	New London, Conn.	76	11	Special duty.
Linsley, Julius G.	Sgt.	Oswego, N. Y.	87	26	Special duty; afterwards to return to Oswego.
Marbury, John B.	Sgt.	Helena, Mont.	85	24	In charge of station.

Stephenson, John J.....	Sgt.....	Fort Myer, Va.....	Washington City.....	74	7	For duty.
Stewart, Oscar D.....	Sgt.....	Pittsburg, Pa.....	Driftwood, Pa.....	87	26	Special duty; afterwards to return to Pittsburg.
Stokes, Henry L.....	Pvt.....	Fort Myer, Va.....	Washington City.....	74	7	For duty.
Stummets, David.....	Pvt.....	Fort Myer, Va.....	Washington City.....	74	7	For duty.
Sullivan, John.....	Pvt.....	Fort Myer, Va.....	Washington City.....	74	7	For duty.
Summers, Ezra T.....	Pvt.....	Fort Myer, Va.....	Washington City.....	74	7	For duty.
Swick, Hugh M.....	Pvt.....	Fort Myer, Va.....	Washington City.....	74	12	For temporary duty; to date Aug. 10.
Talbot, William.....	Pvt.....	Fort Myer, Va.....	Washington City.....	77	7	For temporary duty; to date Aug. 7.
Thonet, Oscar L.....	Pvt.....	Fort Myer, Va.....	Washington City.....	74	7	For duty.
Truman, James J.....	Pvt.....	Fort Myer, Va.....	Washington City.....	74	7	For duty.
Van Hattengen, E. M.....	Pvt.....	Galveston, Tex.....	Indianola, Tex.....	84	23	For special duty.
Van Hattengen, E. M.....	Pvt.....	Indianola, Tex.....	Galveston, Tex.....	89	31	Assistant on station.
Vining, George H.....	Pvt.....	Fort Myer, Va.....	Washington City.....	77	12	For temporary duty; to date Aug. 10.
Vaughan, Richard.....	Pvt.....	Key West, Fla.....	Little Rock, Ark.....	79	14	Assistant on station.
Wagner, Mark.....	Pvt.....	Fort Myer, Va.....	Washington City.....	74	7	For duty.
Wambaugh, William J.....	Pvt.....	Fort Myer, Va.....	Washington City.....	74	7	For duty.
Weber, Gustavus A.....	Sgt.....	Saint Louis, Mo.....	Kansas City, Mo.....	97	26	Special duty; afterwards to return to Saint Louis.
Wood, Peter.....	Sgt.....	Erie, Pa.....	Williamsport, Pa.....	87	26	Special duty; afterwards to return to Erie.
Young, James H.....	Pvt.....	Fort Maginnis, Mont.....	Helena, Mont.....	85	24	Assistant on station.

4. List of orders revoked, changing stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Blundon, Benjamin A.....	Sgt.....	Atlantic City, N. J.....	Nantucket, Mass.....	34	Apr. 9	Revoked by Par. II, S. O. 73, Aug. 6.
Blundon, Benjamin A.....	Sgt.....	Atlantic City, N. J.....	Somer's Point, N. J.....	69	July 23	Revoked by Par. II, S. O. 77, Aug. 12.
Cahill, Patrick J.....	Sgt.....	Concordia, Kans.....	Nantucket, Mass.....	64	June 7	Revoked by Par. I, S. O. 79, Aug. 14.
Hay, George W.....	Sgt.....	Washington City.....	Atlantic City, N. J.....	34	Apr. 9	Revoked by Par. II, S. O. 73, Aug. 6.
McGauran, Michael.....	Pvt.....	Milwaukee, Wis.....	Green Bay, Wis.....	72	Aug. 6	Revoked by Par. II, S. O. 76, Aug. 11.
Paxton, Rutherford E.....	Sgt.....	Denver, Colo.....	Fort Sill, Ind. T.....	80	Aug. 20	Revoked by Par. II, S. O. 86, Aug. 23.

5. List of promotions and casualties.

Name.	Rank.	Order.		Remarks.
		No.	Date.	
Barber, John T	1st Cl. Pvt.	.....	Aug. 27	Discharged by order. Character given, "fair."
Browne, Alexander W	1st Cl. Pvt.	.....	6	Discharged by order. Character cut off.
Chappel, Vernon P	Sergeant	34	24	Promoted from Corporal; to date August 10.
Coburn, Frederick S	1st Cl. Pvt.	.....	12	Discharged; expiration of term of service. Character given, "good." Re-enlisted August 13.
Crane, Arthur B	Sergeant	34	2	Promoted from Corporal; to date August 21.
Curran, William E	Corporal	.....	11	Discharged by order. Character given, "very good."
Dilley, Charles B	1st Cl. Pvt.	.....	23	Discharged by order. Character given, "very good."
Edmondson, William M	Corporal	34	21	Promoted from 1st Class Private; to date August 11.
Evans, Edward A	Sergeant	33	11	Promoted from Corporal; to date August 9.
Foy, John T	Sergeant	33	11	Promoted from 1st Class Private; to date August 9.
Foley, James	2d Cl. Pvt.	.....	11	Discharged by order. Character given, "excellent."
Hall, Harry	Sergeant	.....	25	Discharged by order. Character given, "excellent."
Hammon, William H	Corporal	34	21	Promoted from 1st Class Private; to date August 21.
Hilbus, Robert E	2d Cl. Pvt.	.....	13	Discharged by order. Character given, "excellent."
Jolliffe, Thomas P	2d Cl. Pvt.	.....	13	Discharged by order. Character given, "very good."
Jones, Charles J	Sergeant	33	11	Promoted from Lance Corporal; to date August 9.
Kitchel, Charles N	1st Cl. Pvt.	.....	11	Discharged by order. Character given, "good."
Knopf, George W	1st Cl. Pvt.	34	12	Discharged by order. Character given, "excellent."
Koonce, George W	1st Cl. Pvt.	.....	11	Discharged by order. Character given, "fair."
McGauran, Michael	1st Cl. Pvt.	.....	25	Discharged by order. Character given, "very good."
McGinnis, David R	1st Cl. Pvt.	.....	13	Discharged; expiration of term of service. Character given, "excellent." Re-enlisted August 4.
Merrill, George W	Corporal	.....	3	
Miller, William M	1st Cl. Pvt.	.....	31	Died by reason of gun-shot wound.
Moffette, Edward	Corporal	.....	10	Discharged by order. Character given, "indifferent."
Moloney, Philip	2d Cl. Pvt.	.....	11	Reduced from Corporal; to date August 10.
Moloney, Patrick J	2d Cl. Pvt.	33	13	Discharged by order. Character given, "excellent."
Morrison, Millard F	2d Cl. Pvt.	.....	11	Discharged by order. Character given, "good."
Moore, William L	Sergeant	30	2	Promoted from 1st Class Private; to date August 1.
Myers, Ulysses G	2d Cl. Pvt.	.....	6	Discharged by order. Character given, "excellent."
Naylor, William J	Corporal	33	11	Promoted from 1st Class Private; to date August 9.

O'Dowd, Richard	1st Cl. Pvt.	30	2	Promoted from 2d Class Private; to date August 1.
Parker, John D	2d Cl. Pvt.	34	21	Reduced from Sergeant; to date August 7.
Peters, Rudolph	2d Cl. Pvt.	30	2	Reduced from Sergeant; to date August 1.
Pugh, Thomas O	Corporal	33	11	Promoted from 2d Class Private; to date August 11.
Raunsey, John H	2d Cl. Pvt.	33	11	Discharged by order. Character given, "good."
Reed, Isaac A	Sergeant	30	20	Accidentally killed by the falling of the building in which his office was located
Rennie, James W	2d Cl. Pvt.	30	30	Discharged; expiration of term of service. Character given, "excellent." Re-en-
				listed August 31.
Richey, Stephen R	Corporal	33	11	Promoted from 1st Class Private; to date August 10.
Schleuck, Gustavus	1st Cl. Pvt.	33	14	Discharged by order. Character given, "very good."
Signor, William H	2d Cl. Pvt.	33	11	Reduced from Sergeant; to date August 9.
Stephenson, John J	2d Cl. Pvt.	34	21	Reduced from Sergeant.
Sullivan, John	2d Cl. Pvt.	33	11	Reduced from Sergeant; to date August 9.
Swick, Hugh M	2d Cl. Pvt.	33	13	Discharged by order. Character given, "excellent."
Talbot, William	2d Cl. Pvt.	34	13	Discharged by order. Character given, "excellent."
Townsend, Titus S	Corporal	34	21	Promoted from 1st Class Private; to date August 12.
Upperman, George	2d Cl. Pvt.	34	7	Discharged by order. Character given, "very good."
Vaughan, Rushel	2d Cl. Pvt.	34	10	Discharged by order. Character given, "good."
Woods, Thomas	2d Cl. Pvt.	34	7	Discharged by order. Character given, "very good."

CIRCULAR }
No. 12. }

Signal Office,
WAR DEPARTMENT,
Washington, October 1, 1886.

The tables herewith show for September, 1886 :

1. Changes in stations and duties of enlisted men.
2. Orders revoked, changing stations and duties of enlisted men.
3. Promotions and casualties.

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER :

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

1. List of changes in stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Bailey, William O.....	Cpl.	Knoxville, Tenn.....	Raleigh, N. C.....	86	Sept 16	Special duty in connection with the North Carolina State Weather Service.
Bailey, Wayland.....	Pvt.	Jacksonville, Fla.....	Fort Yates, Dak.....	93	10	In charge of station.
Banks, Will R.....	Pvt.	Washington City.....	Albany, N. Y.....	100	27	Assistant on station.
Bate, Henry C.....	Pvt.	Washington City.....	Nashville, Tenn.....	98	23	Special duty in connection with the Tennessee State Weather Service.
Beall, Samuel W.....	Sgt.	Atlanta, Ga.....	Augusta, Ga.....	95	15	For discharge and re-enlistment; afterwards to return to Atlanta.
Beall, Samuel W.....	Sgt.	Atlanta, Ga.....	Washington City.....	100	27	For clerical duty.
Belford, Frederick.....	Sgt.	Washington City.....	El Paso, Tex.....	100	27	In charge of station.
Bennett, Clarence S.....	Pvt.	Fort Yates, Dak.....	Jacksonville, Fla.....	93	10	Assistant on station.
Blythe, William T.....	Sgt.	Washington City.....	Wood's Holl, Mass., &c.....	101	25	Special duty; afterwards to return to Washington City.
Bolton, William.....	Sgt.	Hatteras, N. C.....	Cape Henry, Va.....	93	10	For special duty.
Burnley, Caleb D.....	Pvt.	Omaha, Nebr.....	Crete, Nebr.....	86	23	Special duty in connection with the Nebraska State Weather Service.
Burrows, William.....	Pvt.	Detroit, Mich.....	Fort Bowie, Ariz.....	97	15	In charge of station; to date Sept. 1.
Conger, Norman B.....	Sgt.	Detroit, Mich.....	Lansing, Mich.....	96	16	Special duty in connection with the Michigan State Weather Service.
Connell, Maurice.....	Pvt.	Prescott, Ariz.....	San Francisco, Cal.....	85	23	Assistant on station; to date Aug. 23.
Connor, Patrick.....	Sgt.	Des Moines, Iowa.....	Des Moines, Iowa.....	96	16	In charge of station.
Conrad, Frederick W.....	Sgt.	Des Moines, Iowa.....	Detroit, Mich.....	96	16	In charge of station.
David, William W.....	Pvt.	San Antonio, Tex.....	Savannah, Ga.....	99	25	In temporary charge of station.
Davis, Albert J.....	Pvt.	Brownsville, Tex.....	Brownsville, Tex.....	99	25	Assistant on station.
Dorman, Louis.....	Pvt.	Washington City.....	San Antonio, Tex.....	96	16	Assistant on station.
Dumout, Charles.....	Pvt.	Washington City.....	Linkville, Oreg.....	100	27	In charge of station.
Dumont, Charles.....	Pvt.	Prescott, Ariz.....	Prescott, Ariz.....	98	23	In charge of station.
Earnest, J. Paul.....	Pvt.	Pittsburg, Pa.....	Wilcox, Ariz.....	94	13	For duty; to date Aug. 25.
Fickett, Fred W.....	Pvt.	Essexport, Me.....	Baltimore, Md.....	91	13	In temporary charge of station.
			Galveston, Tex.....	91	4	Assistant on station.

1. List of changes in stations and duties of enlisted men—Continued.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Gardner, I. Gwynn.....	Pvt.	Grand Haven, Mich.....	Knoxville, Tenn.....	96	Sept. 16	In charge of station.
Gargas, Charles S.....	Pvt.	Cape Henry, Va.....	Fort Robinson, Nebr.....	95	16	In charge of station.
Goulding, Benjamin L.....	Sgt.	Little Rock, Ark.....	Toledo, Ohio.....	98	23	In charge of station.
Graham, Richard.....	Cpl.	Savannah, Ga.....	Columbia, S. C.....	99	25	Special duty in connection with the South Carolina State Weather Service.
Griffin, Gerald E.....	Pvt.	Fort Laramie, Wyo.....	Cheyenne, Wyo.....	92	7	In temporary charge of station.
Griffin, Gerald E.....	Pvt.	Cheyenne, Wyo.....	Fort Laramie, Wyo.....	92	7	In charge of station.
Hayes, Michael.....	Pvt.	.....	Washington City.....	90	3	For duty; to date Sept. 1.
Hack, George J.....	Pvt.	.....	Washington City.....	90	3	For duty; to date Sept. 1.
Hutchinson, Pearson M.....	Pvt.	Erie, Pa.....	Fort Porter, N. Y.....	90	3	For discharge.
Jennings, Thorp B.....	Sgt.	Toledo, Ohio.....	Topeka, Kans.....	98	23	Special duty in connection with the Kansas State Weather Service.
Kerkam, Robert E.....	Sgt.	Springfield, Ill.....	Peoria, Ill., &c.....	97	18	Special duty; afterwards to return to Springfield.
Kuntz, Thomas A.....	Pvt.	Wilmington, N. C.....	Smithville, N. C.....	93	10	Temporary assistant on station.
Kuntz, Thomas A.....	Pvt.	Smithville, N. C.....	Wilmington, N. C.....	94	10	Assistant on station.
Maillet, Edward.....	Pvt.	Detroit, Mich.....	Erie, Pa.....	95	15	Assistant on station.
McClout, John.....	Sgt.	.....	San Antonio, Tex.....	96	16	In charge of station.
McClout, John.....	Sgt.	.....	San Antonio, Tex.....	100	27	Special duty.
McClout, Edward N.....	Pvt.	Ocean City, Md.....	Erie, Pa.....	92	7	Assistant on station.
Millar, Frank B.....	Pvt.	Chicago, Ill.....	Little Rock, Ark.....	93	10	Temporary assistant on station.
Moore, Paul.....	Sgt.	Fort Bowie, Ariz.....	San Francisco, Cal.....	97	18	For duty.
Quisted, Heber W.....	Pvt.	Fort Macon, N. C.....	Hatteras, N. C.....	98	23	In temporary charge of station.
Renrod, George H.....	Cpl.	Edgartown, Mass.....	Edgartown, Mass.....	95	15	Special duty.
Raymond, Charles G.....	Pvt.	Nantucket, Mass.....	Columbus, Ohio.....	95	15	In temporary charge of station.
Ryker, John N.....	Pvt.	Indianapolis, Ind.....	Indianapolis, Ind.....	93	10	Assistant on station.
Ryker, John N.....	Pvt.	Columbus, Ohio.....	Indianapolis, Ind.....	98	23	Assistant on station.
Salsbery, George N.....	Pvt.	Cincinnati, Ohio.....	Savannah, Ga.....	89	23	In charge of station.
Schneider, Henry.....	Pvt.	Fort McDowell, Ariz.....	Wartcopa, Ariz.....	93	13	Assistant on station.
Slaughter, J. Pemberton.....	Pvt.	Brownsville, Tex.....	El Paso, Tex.....	94	13	In temporary charge of station.
Slaughter, J. Pemberton.....	Pvt.	El Paso, Tex.....	Brownsville, Tex.....	100	27	Assistant on station.

Smith, William Easby	Pvt.	.....	Atlanta, Ga.	100	27	In charge of station.
Strong, Charles M.	Pvt.	Columbus, Ohio.	Indianapolis, Ind.	83	10	Assistant on station.
Strong, Charles M.	Pvt.	Indianapolis, Ind.	Columbus, Ohio.	88	22	Assistant on station.
Summers, Ezra T.	Pvt.	Washington City	Cincinnati, Ohio	88	23	Assistant on station.
Sutton, Robert L.	Pvt.	Albany, N. Y.	Washington City	100	27	For clerical duty.
Van Harlingen, E. M.	Pvt.	Galesburg, Tex.	Corpus Christi, Tex.	91	4	To open station.
Vining, George H.	Pvt.	Little Rock, Ark.	Cape Henry, Va.	85	15	Assistant on station.
Walt, Ferdinand J.	Pvt.	Port Huron, Mich.	Cincinnati, Ohio	89	22	Assistant on station.
White, Arthur L.	Pvt.	Hatteras, N. C.	Fort Monroe, Va.	98	23	For discharge and re-enlistment : afterwards to return to Hatteras.
Whitney, Jacob L.	Pvt.	Fort Cummings, N. Mex.	Prescott, Ariz.	96	18	For duty.
Wilkinson, Herbert E.	Pvt.	Lockville, Oreg.	San Francisco, Cal.	98	23	For duty.
Williams, Albert L.	Pvt.	Baltimore, Md.	Pittsburg, Pa.	94	13	Assistant on station.
Wright, Marcus J.	Pvt.	Washington City	Oxford, Miss.	96	16	Special duty in connection with the Mississippi State Weather Service.

2. List of orders revoked, changing stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks
				No.	Date.	
Meekins, Edward N	Pvt.	Ocean City, Md	Erle, Pa.	92	Sept. 7	Revoked by Par. I, S. O. 95, Sept. 15.

3. List of promotions and casualties.

Name.	Rank.	Order.		Remarks.
		No.	Date.	
Bailey, William O	Corporal ..	36	Sept. 1	Promoted from 1st Class Private.
Beall, Samuel W	Sergeant ..	.....	24	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Brainerd, David L	Sergeant ..	.....	17	listed September 25.
Bozzell, Charles L	Corporal ..	36	1	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Comings, Ernest S	1st Cl. Pvt.	.....	25	listed September 18.
Dickens, Charles F	1st Cl. Pvt.	.....	28	Promoted from 1st Class Private.
Hopkins, Thomas R	1st Cl. Pvt.	.....	23	Died at Cincinnati, Ohio, from typhoid fever.
Hutchinson, Pearson M	1st Cl. Pvt.	.....	10	Discharged; expiration of term of service. Character given, "very good."
Mayers, William S	1st Cl. Pvt.	.....	30	Discharged; expiration of term of service. Character given, "excellent." Re-en-
Oswell, Oscar N	Sergeant ..	36	1	listed September 24.
Read, Charles A	Sergeant ..	36	23	Discharged by order. Character given, "fair."
Spring, James G, Jr	1st Cl. Pvt.	.....	30	Discharged by order. Character given, "excellent."
White, Arthur L	1st Cl. Pvt.	.....	30	Promoted from Corporal.
Wilson, Wilford M	1st Cl. Pvt.	36	1	Discharged by order. Character given, "fair."
				Promoted from 2d Class Private.

CIRCULAR }
No. 13. }

Signal Office,

WAR DEPARTMENT,

Washington, November 1, 1886.

The tables herewith show for October, 1886 :

1. Changes in classes and work of stations.
2. Changes in stations and duties of enlisted men.
3. Orders revoked, changing stations and duties of enlisted men.
4. Promotions and casualties.

BY ORDER OF THE CHIEF SIGNAL OFFICER :

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

1. List of changes in classes and work of stations.

Station.	Class.		Instruction.		Remarks.
	From—	To—	No.	Date.	
Columbia, S. C.		2d order.	54	Oct. 25	Established; to display cold-wave signals (Ins. No. 51, Oct. 7).
Columbia, Tenn.		Special river	54	25	Established; to date Nov. 1.
Cottage City, Mass.	3d order.		54	9	Discontinued; to date Nov. 1.
Edgville, Ky.		Special river	54	25	Established; to date Nov. 1.
Landing, Mich.		2d order.	54	25	Established; to display cold-wave signals (Ins. No. 51, Oct. 7).
Leadvale, Tenn.	Special river		53	19	Discontinued; to date Dec. 1.
Lexington, Mo.	Special river		56	30	Discontinued.
Oxford, Miss.		2d order.	54	25	Established; to display cold-wave signals (Ins. No. 51, Oct. 7).
Raleigh, N. C.		2d order.	54	25	Established; to display cold-wave signals (Ins. No. 51, Oct. 7).
Rockwood, Tenn.		Special river	53	19	Discontinued.
San Luis Obispo, Cal.	2d order.		53	19	Discontinued.
Shaw, N. C.	2d order.		53	9	Discontinued.
Smithville, N. C.	2d order.		54	25	Changed; to display cautionary signals.
Topeka, Kans.		2d order.	54	25	Established; to date Nov. 1; to display cautionary signals (Ins. No. 51, Oct. 7).
Vineyard Haven, Mass.		3d order.	52	9	Established; to date Nov. 1; to display cautionary signals.
West Las Animas, Colo.			54	25	Name changed to Las Animas, Colo.

2. *Last of changes in stations and duties of enlisted men.*

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Adams George E	Pvt.	Leavenworth, Kans	Dodge City, Kans	103	Oct. 4	Temporary assistant on station: afterwards to return to Leavenworth.
Bailey, William O	Cpl.	Raleigh, N. C.	Henderson, N. C., &c	107	13	Special duty; afterwards to return to Raleigh.
Buehby, James C	Pvt.	Washington City	Washington City	105	9	For clerical duty.
Butler, William E	Pvt.	Washington City	Chicago, Ill	106	12	Assistant on station.
Capwell, Charles C	Pvt.	Fort Grant, Ariz	Fort Thomas, Ariz	109	20	For duty.
Dunne, Lawrence	Sgt.	Montgomery, Ala	Mt. Vernon Barracks, Ala	102	1	For discharge and re-enlistment; afterwards to return to Montgomery.
Eiker, John T	Pvt.	Washington City	Washington City	103	9	For clerical duty.
Gibson, Thomas	Pvt.	San Carlos Agency, Ariz	San Carlos Agency, Ariz	103	4	To await orders, pending discharge.
Gibson, Thomas	Pvt.	San Carlos Agency, Ariz	San Francisco, Cal	107	13	Assistant on station.
Glase, Elvin J	Pvt.	Portland, Oreg	Umatilla, Oreg., &c	111	30	Special duty; afterwards to return to Portland.
Graham, Richard	Cpl.	Columbia, S. C	Yorkville, S. C., &c	108	14	Special duty; afterwards to return to Columbia.
Hinman, Richard E	Pvt.	Saint Paul, Minn	Duluth, Minn	105	4	In temporary charge of station; afterwards to return to Saint Paul.
Jennings, Thorp B	Sgt.	Toledo, Ohio	Fort Wayne, Mich	106	12	For discharge and re-enlistment; afterwards to return to Toledo.
Jeeunofsky, Louis N	Sgt.	Nashville, Tenn	Carthage, Tenn	102	1	Special duty; afterwards to return to Nashville.
Johnson, James W	Pvt.	San Francisco, Cal	Port Huron, Mich	106	14	Assistant on station.
Miller, Frank B	Pvt.	Little Rock, Ark	Omaha, Nebr	108	14	Assistant on station.
Miller, William S	Pvt.	Fort Bowie, Ariz	Fort Grant, Ariz	111	30	Assistant on station.
O'Donnell, John J	Pvt.	Washington City	Washington City	109	20	For clerical duty.
Olds, William J	Pvt.	New London, Conn	New London, Conn	106	12	Assistant on station.
Olmsied, Heber W	Pvt.	Hatteras, N. C	Fort Macon, N. C	103	4	Assistant on station.
Peirod, Hiram J	Sgt.	New York City	New Brunswick, N. J	109	20	Special duty; afterwards to return to New York City.
Robtison, Walter F	Pvt.	New York City	San Carlos Agency, Ariz	103	4	In charge of station.

Rotchford, Richard L.	Pvt.	Fort Cœur d'Alene, Idaho	Spokane Falls, Wash. T.	107	13	Assistant on station.
Simone, William U.	Pvt.		Little Rock, Ark.	102	1	Assistant on station.
Stewart, Charles	Pvt.		Fort Cœur d'Alene, Idaho	107	13	In charge of station.
Thomas, Evan T.	Pvt.	San Francisco, Cal.	Washington City	108	14	For clerical duty.
Thomas, William Whit.	Sgt.	Cedar Keys, Fla.		109	20	To await orders.
Wagner, Max	Pvt.	Washington City	Philadelphia, Pa.	104	6	Assistant on station.
Wambaugh, William J.	Pvt.	Washington City	Augusta, Ga.	109	20	Assistant on station.
White, Arthur L.	Pvt.	Norfolk, Va.	Hatteras, N. C.	110	28	In charge of station.
Williams, John R.	Sgt.	Philadelphia, Pa.	New London, Conn.	106	12	In charge of station.
Williams, Frank T.	Pvt.	Augusta, Ga.	Cedar Keys, Fla.	109	20	In charge of station.

3. List of orders revoked, changing stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks
				No.	Date.	
Belford, Frederick	Sgt.	Brownsville, Tex.	El Paso, Tex.	100	Sept. 27	Revoked by Par. V., S. O. 109, Oct. 20.
Davis, Albert J.	Pvt.	New London, Conn.	San Antonio, Tex.	100	Sept. 27	Revoked by Par. V., S. O. 109, Oct. 20.
Lynch, John G.	Sgt.	San Antonio, Tex.	Washington City	76	Aug. 11	Revoked by Par. I., S. O. 105, Oct. 9.
McGlone, John	Sgt.	San Antonio, Tex.	Brownsville, Tex.	100	Sept. 27	Revoked by Par. V., S. O. 109, Oct. 20.
Slaughter, J. Pemberton	Pvt.	El Paso, Tex.	Brownsville, Tex.	100	Sept. 27	Revoked by Par. V., S. O. 109, Oct. 20.

4. List of promotions and casualties.

Name.	Rank.	Order.		Remarks.
		No.	Date.	
Adams, George E.....	1st Cl. Pvt.	40	Oct. 12	Promoted from 2d Class Private; to date October 1.
Ashton, Clinton J.....	Corporal		24	Discharged; expiration of term of service. Character given, "excellent." Re-en-listed October 25.
Belford, Frederick.....	Sergeant		31	Died at Fort Bliss, El Paso, Texas, from chronic cerebral meningitis and dementia.
Brainard, David L.....	Sergeant		21	Discharged by order. Character given, "excellent."
Bushby, James C.....	1st Cl. Pvt.	41	20	Promoted from 2d Class Private; to date October 9.
Dorman, Louis.....	1st Cl. Pvt.	41	20	Promoted from 2d Class Private; to date September 23.
Dunne, Lawrence.....	Sergeant		17	Discharged; expiration of term of service. Character given, "very good." Re-en-listed October 18.
Elker, John T.....	1st Cl. Pvt.	41	20	Promoted from 2d Class Private; to date October 8.
Gibson, Thomas.....	1st Cl. Pvt.		31	Discharged; expiration of term of service. Character given, "very good."
Hill, George A.....	1st Cl. Pvt.		7	Discharged; expiration of term of service. Character given, "excellent." Re-en-listed October 8.
Jennings, Thorp B.....	Sergeant		19	Discharged; expiration of term of service. Character given, "excellent." Re-en-listed October 20.
Korts, William A.....	Corporal	40	12	Promoted from 1st Class Private; to date October 5.
Linn, Frank E.....	1st Cl. Pvt.	40	12	Promoted from 2d Class Private; to date October 1.
Lynch, John G.....	Sergeant		4	Discharged by order. Character given, "fair."
McCreery, Hawes.....	2d Cl. Pvt.		8	Discharged by order. Character given, "fair."
O'Connor, John J.....	1st Cl. Pvt.		21	Discharged by order. Character given, "fair."
Olney, Edward B.....	1st Cl. Pvt.	40	12	Promoted from 2d Class Private; to date October 1.
Ray, William H.....	1st Cl. Pvt.	45	30	Reduced from Sergeant.
Riviere, Georges A.....	2d Cl. Pvt.		Sep. 30	Discharged by order.
Simons, William U.....	1st Cl. Pvt.	41	Oct. 20	Promoted from 2d Class Private; to date September 25.
Spates, Robert N.....	2d Cl. Pvt.		31	Discharged; expiration of term of service. Character given, "fair."
Widmyer, William L.....	Sergeant	40	12	Promoted from 2d Class Private; to date October 5.
Williams, Albert L.....	1st Cl. Pvt.	40	12	Promoted from 2d Class Private.
White, Arthur L.....	1st Cl. Pvt.		1	Re-en-listed.

CIRCULAR }
No. 14. }

Signal Office,

WAR DEPARTMENT.

Washington, November 6, 1886.

All persons connected with the Signal Service are invited to furnish, for publication in the "Monthly Weather Review," the results of investigations in meteorology. These contributions should not contain more than 2,000 words for any one issue of the "Review," and should treat of subjects germane to the work of the service.

BY ORDER OF THE CHIEF SIGNAL OFFICER:

J. MITCHELL,

2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

Signal Office,
WAR DEPARTMENT,
Washington, December 1, 1886.

CIRCULAR }
No. 15. }

The tables herewith show for November, 1886 :

1. Changes in classes and work of stations.
2. Changes in stations and duties of officers.
3. Changes in stations and duties of enlisted men.
4. Orders revoked and amended, changing stations and duties of enlisted men.
5. Promotions and casualties.

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER :

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL :

2d Lieutenant, Signal Corps, U. S. Army.

1. List of changes in classes and work of stations.

Station.	Class.		Instruction.		Remarks.
	From—	To—	No.	Date.	
Chatham, Mass.			59	Nov. 10	Changed from Wood's Holl to Boston section.
Edgartown, Mass.			59	10	Section centre changed from Boston to Wood's Holl, Mass.
Eureka, Cal.		2d order.	59	10	Established.
Gay Head Light, Mass.		Special display	59	10	Established.
Greencastle, Ind.			58	4	Discontinued.
Highland Light, Mass.			59	10	Changed from Wood's Holl to Boston section.
Hyannis, Mass.			59	10	Changed from Wood's Holl to Boston section.
Laredo, Tex.		Special river	57	1	Established.
Las Animas, Colo.			65	30	To display cold-wave signals.
Manchester, N. H.			61	13	Established.
Nantucket, Mass.		2d order.	59	10	Section centre changed from Boston to Wood's Holl, Mass.
New Bedford, Mass.			59	10	Changed from Wood's Holl to Boston section.
New Brunswick, N. J.		2d order.	58	4	Established; to display cold-wave signals.
Noboa Light, Mass.		Special display	59	10	Established.
Northfield, Vt.		2d order.	61	13	Established.
Provincetown, Mass.			59	10	Changed from Wood's Holl to Boston section.
Sandy Hook, N. J.		2d order.	61	13	Changed.
Sodus Point, N. Y.		Special display	64	27	Established.
Vineyard Haven, Mass.			59	10	Section centre changed from Boston to Wood's Holl, Mass.; repeats signal orders to Cedar Tree Neck, Mass. (Ins. No. 57, Nov. 1.)
Wood's Holl, Mass.		2d order.	58	4	Established; to display cautionary and cold-wave signals.

2. List of changes in stations and duties of officers.

Name.	Rank.	From—	To—	Order—		Remarks.
				No.	Date.	
Powell, Joseph S.	2d Lieut., S. C.	Washington City	Omaha, Nebr.	*274	Nov. 26	For duty.
Wright, William D.	2d Lieut., S. C.	On leave.	Duty in O. C. S. O. ; to date Nov. 1.	*255	2	Relinquished unexpired portion of four months' leave, granted in S. O. No. 166, A. G. O., July 19.
Walsh, John C.	2d Lieut., S. C.	On leave.	Duty	*205	Sept. 3	Returned to duty Nov. 10, 1886, from two months' leave.
Finley, John P.	2d Lieut., S. C.	Washington City	New York City	*269	Nov. 18	For duty.
Brinard, David L.	2d Lt., 2d Cav.	Temporary duty in O. C. S. O.	Join his troop.	*276	29	To take effect Jan. 1, 1887.

* Adjutant General's Office.

3. List of changes in stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Adams, Joseph M.	Pvt.	Fort Reno, Ind. T.	Washington City.	123	Nov. 23	For duty.
Applegate, Samuel	Sgt.	Fort Reno, Ind. T.	Burlington, Iowa.	120	13	To open station.
Bailey, Joseph A.	Pvt.		Concordia, Kans.	125	29	In temporary charge of station.
Bail, Oscar M.	Pvt.		Washington City.	115	5	For duty.
Bennett, John W.	Pvt.		Washington City.	122	17	For temporary duty.
Berrill, James F.	Pvt.	Washington City.	Washington City.	122	17	For temporary duty.
Burnley, Caleb D.	Pvt.	Washington City.	Little Rock, Ark.	112	1	Assistant on station.
	Pvt.	Crete, Nebr.	Norfolk, Nebr., &c.	118	10	For special duty; afterwards to return to Crete.
Burrows, William	Pvt.		San Carlos Agency, Ariz.	125	23	Assistant on station.
Byers, Alphens	Pvt.		Washington City.	125	29	For duty.
Capsell, Charles C.	Pvt.		Fort Thomas, Ariz.	114	4	In charge of station.
Casidy, James	Sgt.	Prescott, Ariz.	Indianapolis, Ind.	114	4	For duty in connection with the Indiana State Weather Service.
Chaffee, Frank P.	Sgt.	Smithville, N. C.	Wood's Holl, Mass.	115	5	For duty.
Clements, George E.	Pvt.	Washington City.	Boston, Mass.	122	17	Assistant on station.
Coburn, Charles H.	Cpl.	Washington City.	Detroit, Mich.	120	13	Assistant on station.
Cox, Henry J.	Pvt.	Boston, Mass.	Northfield, Vt.	122	17	To open station.
Daniels, Paul	Pvt.	Washington City.	New York City.	122	17	For duty.
Davis, Albert J.	Pvt.	Brownsville, Tex.	Rio Grande City, Tex.	121	15	In charge of station.
Demain, Edward R.	Sgt.	Yuma, Ariz.	Prescott, Ariz.	114	4	For duty.
Dunn, Elias B.	Sgt.		New York City.	123	24	In charge of station.
Farnell, Daniel N.	Pvt.	Rio Grande City, Tex.		121	15	To await orders, pending discharge.
Gardiner, I. Gwyn	Pvt.	Knoxville, Tenn.	Grand Haven, Mich.	113	9	Assistant on station.
Goncher, Henry	Pvt.		Fort Bowie, Ariz.	125	29	In charge of station.
Graham, Frank I.	Pvt.		Washington City.	117	9	For temporary duty.
Hobbs, Everett C.	Pvt.	Fort Buford, Dak.	Glendive, Mont.	124	26	In charge of station.
Knabe, Henry F.	Cpl.	Fort Grant, Ariz.	Knoxville, Tenn.	113	9	In charge of station.
Napbot, Edward	Pvt.	Erie, Pa.	Buffalo, N. Y.	119	11	For discharge.
McKae, Austin I.	Sgt.	Columbus, Ohio	Terre Haute, Ind.	115	6	For duty in connection with the Indiana State Weather Service.
Miller, William S.	Pvt.		Fort Grant, Ariz.	113	9	In charge of station.

Mitchell, Alexander J.	Pvt.	San Francisco, Cal.	Smithville, N. C.	115	5	In charge of station.
Moore, Denis	Sgt.	San Francisco, Cal.	Eureka, Cal.	119	11	To open station.
Neiferi, William W.	Pvt.	Fort Huachuca, Ariz.	Brownsville, Tex.	121	15	Assistant on station.
Nelleri, William W.	Pvt.	El Paso, Tex.	Fort Reno, Ind. T.	124	26	In charge of station.
O'Donnell, John J.	Pvt.	Washington City	Atlanta, Ga.	119	1	Assistant on station.
O'Dowd, Richard	Pvt.	Prescott, Ariz.	San Antonio, Tex.	120	13	Assistant on station.
Parker, Orin	Pvt.	Greencastle, Ind.	Columbus, Ohio	115	5	In charge of station.
Patrick, Henry R.	Pvt.	Washington City	New York City	122	17	Assistant on station.
Penrod, George H.	Cpl.	Edgartown, Mass.	Hatteras, N. C.	112	1	In charge of station.
Penrod, Hiram J.	Sgt.	Washington City	New York City	123	24	For duty under Lieutenant Finley.
Pumphrey, Jackson H.	Pvt.	Washington City	Washington City	121	15	For duty; to date Nov. 12.
Rattler, Dandow	Pvt.	La Crosse, Wis.	Boston, Mass.	122	17	Assistant on station.
Ray, William H.	Pvt.	Edgartown, Mass.	Memphis, Tenn.	121	15	Assistant on station.
Raymond, Charles G.	Pvt.	Edgartown, Mass.	Edgartown, Mass.	122	13	For duty.
Ridgway, Frank	Sgt.	Sandy Hook, N. J.	Washington City	120	17	To open station.
Richardson, Herbert W.	Pvt.	Washington City	Pittsburg, Pa.	122	17	Assistant on station.
Rotchford, Richard L.	Pvt.	Washington City	Fort Coeur d'Alene, Idaho	124	26	In temporary charge of station.
Sherwood, Timothy W.	Pvt.	Fort Bayard, N. Mex.	New Orleans, La.	121	15	Assistant on station.
Simons, William E.	Pvt.	Little Rock, Ark.	Knobel, Ark., &c.	113	2	For special duty; afterwards to re- turn to Little Rock.
Stephenson, John J.	Pvt.	Washington City	Erie, Pa.	122	17	Assistant on station.
Stewart, Charles	Pvt.	Fort Coeur d'Alene, Idaho	Spokane Falls, Wash. T.	124	26	Temporary assistant on station.
Thomas, Evan T.	Pvt.	Washington City	Eastport, Me.	120	13	Assistant on station.
von Hermann, Charles F.	Pvt.	Fort Huachuca, Ariz.	La Crosse, Wis.	121	15	In charge of station.
Wappenhans, C. F. R.	Sgt.	Indianapolis, Ind.	Greencastle, Ind.	120	13	For special duty; afterwards to re- turn to Indianapolis.
White, Arthur L.	Pvt.	Hatteras, N. C.	Edgartown, Mass.	112	1	In charge of station.
Whitfield, Augustus F.	Pvt.	Fort Thomas, Ariz.	Yuma, Ariz.	114	4	In charge of station.
Whitney, William A.	Pvt.	Fort Huachuca, Ariz.	Pensacola, Fla.	121	15	Assistant on station.
Widmeyer, James J.	Pvt.	Fort Bowie, Ariz.	Shreveport, La.	121	15	Assistant on station.
Young, James H.	Pvt.	Helena, Mont.	Fort Reno, Ind. T.	120	13	In charge of station.

4. List of orders revoked and amended, changing stations and duties of enlisted men.

Name.	Rank.	Order.			Remarks
		From—	To—	No. Date.	
Applegate, Samuel	Sgt.	Fort Reno, Ind. T.	Burlington, Iowa	120 Nov. 13	Revoked by Par. III., S. O. No. 121, Nov. 16.
Goulding, Benjamin L.	Sgt.	Little Rock, Ark.	Knoel, Ark., &c.	87 Aug. 25	Revoked by Par. II., S. O. No. 113, Nov. 2.
Neifert, William W.	Pvt.	Fort Huachuca, Ariz.	Brownsville, Tex.	121 Nov. 15	Amended by Par. I., S. O. No. 124, Nov. 28, to read that upon arrival at El Paso, Tex., to proceed to Fort Reno, Ind. T.
Young, James H.	Pvt.	Helena, Mont.	Fort Reno, Ind. T.	120 Nov. 15	Revoked by Par. III., S. O. No. 121, Nov. 15.

5. List of promotions and casualties.

Name.	Rank.	Order.			Remarks.
		No.	Date.		
Coburn, Charles H.	1st Cl. Pvt.	49	Nov. 15		Reduced from Corporal; to date Nov. 17.
Gibson, Thomas	1st Cl. Pvt.	1			Re-enlisted.
Howell, Edgar T.	2d Cl. Pvt.	2			Discharged by order. Character given, "very good."
Manbet, Edward	1st Cl. Pvt.	19			Discharged by order. Character given, "indifferent."
Moore, Theodore	Sergeant	49			Promoted from 1st Class Private.
Mounier, Thomas	1st Cl. Pvt.	Sept. 14			Dishonorably discharged, without character, and to be confined one year, for disobedience of orders, by sentence of G. C. M. O., 46, Department of Arizona.
Norton, Dudley B.	Sergeant	47	Nov. 2		Promoted from 1st Class Private.
O'Brien, Thomas J.	2d Cl. Pvt.	47			Reduced from Sergeant.
Purcell, Ulysses G.	1st Cl. Pvt.	49			Promoted from 2d Class Private.
Stokes, Harry L.	2d Cl. Pvt.	30			Discharged by order. Character given, "very good."
Wagner, Hermann	2d Cl. Pvt.	1			Discharged by order. Character given, "excellent."

CIRCULAR }
No. 16. }

Signal Office,
WAR DEPARTMENT,

Washington, December 31, 1886.

The tables herewith show for December, 1886:

1. Changes in classes and work of stations.
2. Changes in stations and duties of officers.
3. Changes in stations and duties of enlisted men.
4. Orders revoked, changing stations and duties of enlisted men.
5. Promotions and casualties.

BY ORDER OF THE ACTING CHIEF SIGNAL OFFICER:

J. MITCHELL,
2d Lieutenant, Signal Corps, U. S. Army.

OFFICIAL:

2d Lieutenant, Signal Corps, U. S. Army.

1. List of changes in classes and work of stations.

Station.	Class.		Instruction.		Remarks.
	From—	To—	No.	Date.	
Astoria, Oreg.	3d order.	2d order.	68	Dec. 8	Changed; to display cautionary signals.
Benton, Fort, Mont.	2d order.		68	8	Discontinued.
Block Island, R. I.			66	4	To display cautionary signals. (Narragansett section.)
Cape Henry, Va.	2d order.	3d order.	68	8	Changed; to display cautionary signals.
Cape Mendocino, Cal.	2d order.		68	4	Discontinued.
Chicamicon, N. C.		Repair station	68	8	Established.
Kitty Hawk, N. C.	2d order.	3d order.	68	8	Changed; to display cautionary signals.
Macon, Fort, N. C.	2d order.		68	8	Discontinued.
Morehead City, N. C.		Special display	68	8	Established.
New River Inlet, N. C.	3d order.		68	8	Discontinued.
Southeast Light, R. I.		Special display	66	4	Established.
Terre Haute, Ind.		3d order.	71	15	Established; to date Nov. 28.
Yuma, Ariz.			68	8	Observations of stage of water discontinued.

2. List of changes in stations and duties of officers.

Name.	Rank.	From—	To—	Order—		Remarks.
				No.	Date.	
Glasford, William A.	2d Lieut., S. C.	San Francisco, Cal.	Prescott, Ariz.	*287	Dec. 11	To take station.
Watkins, Robert B.	2d Lieut., S. C.	Prescott, Ariz.	Washington City	*287	11	For duty.
Finley, John P.	2d Lieut., S. C.	New York City	Washington City	*289	14	For duty.
Maxfield, Joseph E.	2d Lieut., S. C.	Washington City	San Francisco, Cal.	*287	11	To take station.

* Adjutant General's Office.

3. List of changes in stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Adams, Joseph M.	Pvt.	Washington City	Des Moines, Iowa.	128	Dec. 7	Assistant on station.
Aldatore, Henry F.	Pvt.	Washington City	New Orleans, La.	129	9	Assistant on station.
Applegate, Samuel	Sgt.	Concordia, Kans.	Fort Leavenworth, Kans.	130	24	For discharge.
Ball, Oscar M.	Pvt.	Washington City	Mobile, Ala.	131	7	Assistant on station.
Bachelor, Frank	Pvt.	Washington City	Cincinnati, Ohio	132	30	Assistant on station.
Bennett, John W.	Pvt.	Washington City	Duluth, Minn.	133	7	Assistant on station.
Boynton, Henry R.	Pvt.	Fort Bridger, Wyo.	Boise City, Idaho.	134	7	In charge of station.
Burrows, William	Pvt.	Lava, N. Mex.	San Carlos Agency, Ariz.	135	9	In charge of station.
Butler, Herbert S.	Pvt.	Washington City	Santa Fe, N. Mex.	136	24	Assistant on station.
Byers, Alpheus	Pvt.	Atlantic City, N. J.	Davenport, Iowa.	137	7	Assistant on station.
Cahill, Patrick J.	Sgt.	Washington City	Block Island, R. I.	138	7	In charge of station.
Chapman, Jerome C.	Pvt.	Washington City	Mount Washington, N. H.	139	1	Assistant on station.
Cole, Otto B.	Sgt.	Boston, Mass.	Base River Light, Mass.	140	1	For special duty; afterwards to return to Boston.
Delano, Willie S.	Pvt.	Valentine, Nebr.	Columbus, Ohio	141	24	To wait orders, pending discharge.
Dickens, Charles F.	Pvt.	Columbus, Ohio	Toledo, Ohio	142	30	Temporary assistant on station.
Dickens, Charles F.	Pvt.	Galveston, Tex.	San Antonio, Tex.	143	30	Assistant on station.
Fickett, Fred W.	Pvt.			144	20	For discharge and re-enlistment; afterwards to return to Galveston.
Gargas, Charles S.	Pvt.	Fort Robinson, Nebr.	Fort Laramie, Wyo.	145	28	In charge of station.
Goulding, Benjamin L.	Sgt.	Toledo, Ohio	Detroit, Mich.	146	15	For discharge.
Griffin, Gerald E.	Pvt.	Fort Laramie, Wyo.	Fort Robinson, Nebr.	147	25	In charge of station.
Hase-Hagen, George	Sgt.	Fort Smith, Ark.	Omaha, Nebr.	148	24	Assistant on station.
Hines, Isaac B.	Pvt.		Block Island, R. I.	149	7	Assistant on station.
Jones, Edward F.	Pvt.	Fort Canby, Wash. T.	Portland, Me.	150	13	In charge of station.
Karne, John D.	Pvt.	Boise City, Idaho	Fort Stevens, Ore.	151	7	For special duty.
Kennedy, James W.	Sgt.		Washington City	152	7	For duty.
Lieuty, Martin W.	Pvt.	Memphis, Tenn.	Norfolk, Va.	153	30	Assistant on station.
Maxwell, William D.	Pvt.	Memphis, Tenn.	Dodge City, Kans.	154	24	Assistant on station.
McDonough, Patrick	Pvt.	Saint Louis, Mo.	Saint Louis, Mo.	155	26	Temporary assistant on station.
McDonough, Patrick	Pvt.	Saint Louis, Mo.	Memphis, Tenn.	156	28	Assistant on station.

3. List of changes in stations and duties of enlisted men—Continued.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
McRae, Austin L.	Sgt.	Terre Haute, Ind.	Covington, Ky.	131	Dec. 15	For discharge and re-enlistment; afterwards to return to Terre Haute.
Millar, Frank B.	Pvt.	Omaha, Nebr.	Valentine, Nebr.	132	24	In charge of station.
Mitchell, Alexander J.	Pvt.	Smithville, N. C.	Fort Monroe, Va.	127	4	For discharge and re-enlistment; afterwards to return to Smithville.
Mitchell, Alexander J.	Pvt.	Smithville, N. C.	Wilmington, N. C.	132	17	For discharge and re-enlistment; afterwards to return to Smithville.
Murphy, Daniel C.	Sgt.	Eastport, Me.	Fort Preble, Me.	136	25	For discharge and re-enlistment; afterwards to return to Eastport.
O'Dowd, Richard	Pvt.		San Antonio, Tex.	134	23	To report for duty to Lieut. J. E. Seiber, Signal Corps, U. S. Army.
Pague, Benner S.	Pvt.	Roseburg, Oreg.	Vanconver Barracks, Wash. T.	133	20	For discharge and re-enlistment; afterwards to return to Roseburg.
Robinson, Walter F.	Pvt.	San Carlos Agency, Ariz.	Fort Thomas, Ariz.	128	9	Assistant on station.
Roche, Henry H.	Pvt.	Fort O'Connell, Me.	Eastport, Me.	136	28	Assistant on station.
Rochford, Richard L.	Pvt.	Fort O'Connell, Me.	Spokane Falls, Wash. T.	126	1	Assistant on station.
Scott, George W.	Pvt.	Fort O'Connell, Me.	Omaha, Nebr.	135	24	Assistant on station.
Schneider, Henry	Pvt.	Maricopa, Ariz.	Prescott, Ariz.	129	9	For duty.
Sims, Alfred F.	Pvt.	Dodge City, Kans.	Fort Smith, Ark.	135	24	In charge of station.
Slaughter, J. Pemberton	Pvt.	El Paso, Tex.	Lavin, N. Mex.	135	24	In charge of station.
Stewart, Charles	Pvt.	Spokane Falls, Wash. T.	Fort O'Connell, Me.	126	1	In charge of station.
Tarr, Leonard M.	Pvt.	Mobile, Ala.	Atlantic City, N. J.	128	7	In charge of station.
Thomas, Evan T.	Pvt.	Washington City	Philadelphia, Pa.	130	13	Assistant on station.
Thonet, Oscar L.	Pvt.	Washington City	El Paso, Tex.	128	7	Assistant on station.
Tvaudle, William V.	Pvt.	Santa Fe, N. Mex.	Fort Monroe, Va.	135	24	In charge of station.
Vining, George H.	Pvt.	Cape Henry, Va.	Greencastle, Ind.	132	17	For discharge.
Wappenhans, C. F. R.	Sgt.	Indianapolis, Ind.		131	15	For special duty; afterwards to return to Indianapolis.
Wagner, Max	Pvt.	Philadelphia, Pa.	Nantucket, Mass.	128	7	Assistant on station.
Young, James H.	Pvt.	Helena, Mont.	Fort Bridger, Wyo.	128	7	In charge of station.

4. List of orders revoked, changing stations and duties of enlisted men.

Name.	Rank.	From—	To—	Order.		Remarks.
				No.	Date.	
Cole, Otto B.....	Sgt -	Boston, Mass.....	Franklin, Mass., &c.....	57	Aug. 26	Revoked by Par. II., S. O. No. 133, Dec. 20.
Mitchell, Alexander J....	Pvt.	Smithville, N. C.....	Fort Monroe, Va.....	127	Dec. 4	Revoked by Par. I., S. O. No. 132, Dec. 17.

5. List of promotions and casualties.

Name.	Rank.	Order. No. Date.	Remarks.
Bate, Henry C.....	1st Cl. Pvt.	57 Dec 13	Promoted from 2d Class Private; to date December 5.
Bolton, Patrick.....	1st Cl. Pvt.	57 13	Promoted from 2d Class Private; to date December 4.
Brester, Isaac W.....	1st Cl. Pvt.	57 13	Promoted from 2d Class Private; to date December 1.
Carroll, Daniel J.....	Corporal	61 31	Promoted from 1st Class Private; to date December 13.
Chambers, Charles W.....	Corporal	57 13	Promoted from 1st Class Private; to date December 7.
Coburn, Charles H.....	1st Cl. Pvt.	57 15	Discharged; expiration of term of service. Character given, "good." Re-enlisted December 16.
Cox, Henry J.....	Lance Sgt.	57 13	Promoted from 1st Class Private.
Crawford, Robert M.....	Corporal	61 31	Promoted from 1st Class Private; to date December 1.
Crosman, John D.....	1st Cl. Pvt.	57 13	Promoted from 2d Class Private; to date December 8.
Cunningham, Charles K.....	1st Cl. Pvt.	57 27	Discharged by order. Character given, "very good."
Dickens, Charles F.....	1st Cl. Pvt.	61 31	Promoted from 2d Class Private; to date December 23.
Eichelberger, Wm. W.....	Sergeant	12 19	Died at Fort Sumter, S. C., from "cerebral hemorrhage."
Farnell, Daniel N.....	1st Cl. Pvt.	57 18	Discharged by order. Character given, "good."
Hanner, Edward A.....	1st Cl. Pvt.	57 13	Promoted from 2d Class Private; to date December 8.
Harrison, Thomas E.....	Sergeant	57 14	Discharged; expiration of term of service. Character given, "excellent in every respect." Re-enlisted December 15.

5. List of promotions and casualties—Continued.

Name.	Rank.	Order.		Remarks.
		No.	Date.	
Haworth, Richard W.....	1st Cl. Pvt.	57	Dec. 13	Promoted from 2d Class Private; to date December 10.
Holland, Millard F.....	1st Cl. Pvt.	57	13	Promoted from 2d Class Private.
Knabe, Henry F.....	Sergeant	61	31	Promoted from Corporal; to date December 1.
Lawton, George E.....	1st Cl. Pvt.	57	13	Promoted from 2d Class Private.
Mell, Patrick H.....	1st Cl. Pvt.	57	13	Promoted from 2d Class Private; to date December 8.
Morley, William, Jr.....	1st Cl. Pvt.	57	13	Promoted from 2d Class Private.
Moriarty, John.....	1st Cl. Pvt.	57	13	Promoted from 2d Class Private.
Olmsted, Heber W.....	1st Cl. Pvt.	57	13	Promoted from 2d Class Private; to date December 1.
Perry, Edward E.....	Sergeant	61	31	Promoted from Corporal; to date December 13.
Randolph, Frederick J.....	Corporal	61	31	Promoted from 1st Class Private; to date December 13.
Ravenscraft, Elbridge M.....	1st Cl. Pvt.	57	13	Promoted from 2d Class Private; to date December 1.
Reeder, George.....	1st Cl. Pvt.	57	13	Promoted from 2d Class Private; to date December 1.
Rotchford, Richard L.....	1st Cl. Pvt.	57	13	Promoted from 2d Class Private; to date December 8.
Schneider, August.....	Sergeant	61	31	Promoted from Corporal; to date December 1.
Schneider, Charles F.....	1st Cl. Pvt.	57	13	Promoted from 2d Class Private; to date December 1.
Schneider, Henry.....	1st Cl. Pvt.	57	13	Promoted from 2d Class Private; to date December 1.
Scott, George W.....	1st Cl. Pvt.	61	31	Promoted from 2d Class Private; to date December 23.
Thompson, Arthur.....	1st Cl. Pvt.	57	13	Promoted from 2d Class Private; to date November 16.
Vining, George H.....	1st Cl. Pvt.	57	24	Discharged by order. Character given, "good."
Vose, Elsie C.....	1st Cl. Pvt.	57	13	Promoted from 2d Class Private; to date December 1.